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THE WORLD'S WORK

VOLUME XXVIII

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A HISTORY OF OUR TIME

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May, 1914

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THE WORLD'S WORK

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America Overseas

By

Secretary of War Garrison
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Major-General Leonard Wood
Captain James H. Oliver
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ARTHUR W. PAGE, EDITOR

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MR. WILLIAM C. ADAMSON

REPRESENTATIVE IN CONGRESS FROM THE FOURTH DISTRICT OF GEORGIA, WHO LED THE SUCCESSFUL CAMPAIGN IN THE LOWER HOUSE FOR THE REPEAL OF THE EXEMPTION OF AMERICAN VESSELS IN COASTWISE TRADE FROM THE PAYMENT OF TOLLS FOR PASSAGE THROUGH THE PANAMA CANAL

THE WORLD'S WORK

MAY, 1914

VOLUME XXVIII NUMBER 1

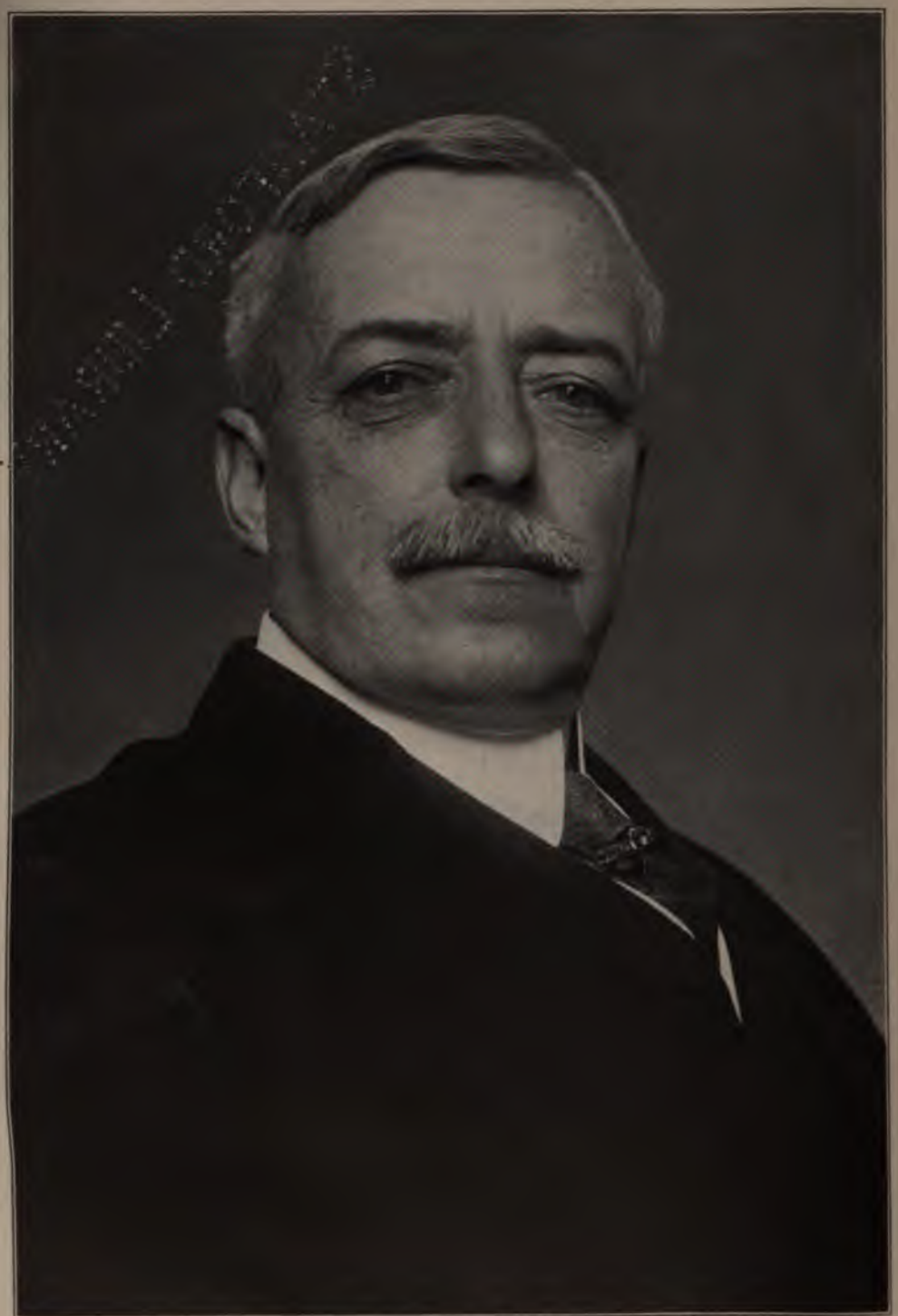
THE MARCH OF EVENTS

SOME years ago a society was formed in California, and the founder announced that all members would have to do as they pleased, even if he had to make them. The society is said to have been quite successful. The spirit that governed that society is the spirit of the new Monroe Doctrine. Central America and the countries of the Caribbean have got to govern themselves even if we have to make them. The United States not only stands between its weaker neighbors and loss of land; it also stands for their governmental rejuvenation. As Dr. William Bayard Hale explains elsewhere in this issue, the United States has now a moral empire in America. It is the maintenance of this moral empire that dictates our policy in Mexico, in Nicaragua, our handling of Santo Domingo, etc.

This new Monroe Doctrine is not only a virtue but a necessity. If we leave some of our Southern neighbors as they have been, they will continue in a state of turmoil incited by the profits and power that accrue to revolution. This state of turmoil is likely to become intolerable to us just as the condition of Cuba was intolerable before our war with Spain; and intolerable conditions are just as likely to lead to territorial acquisition now as then. There is also the kind of danger which we faced in 1895, when one of our turbulent neighbors got into trouble with England. When the trouble came we stretched the Monroe Doctrine enough to settle the matter. But we should have been much better off had we stretched the Doctrine sufficiently before 1895 to have enabled us to prevent the trouble from arising.

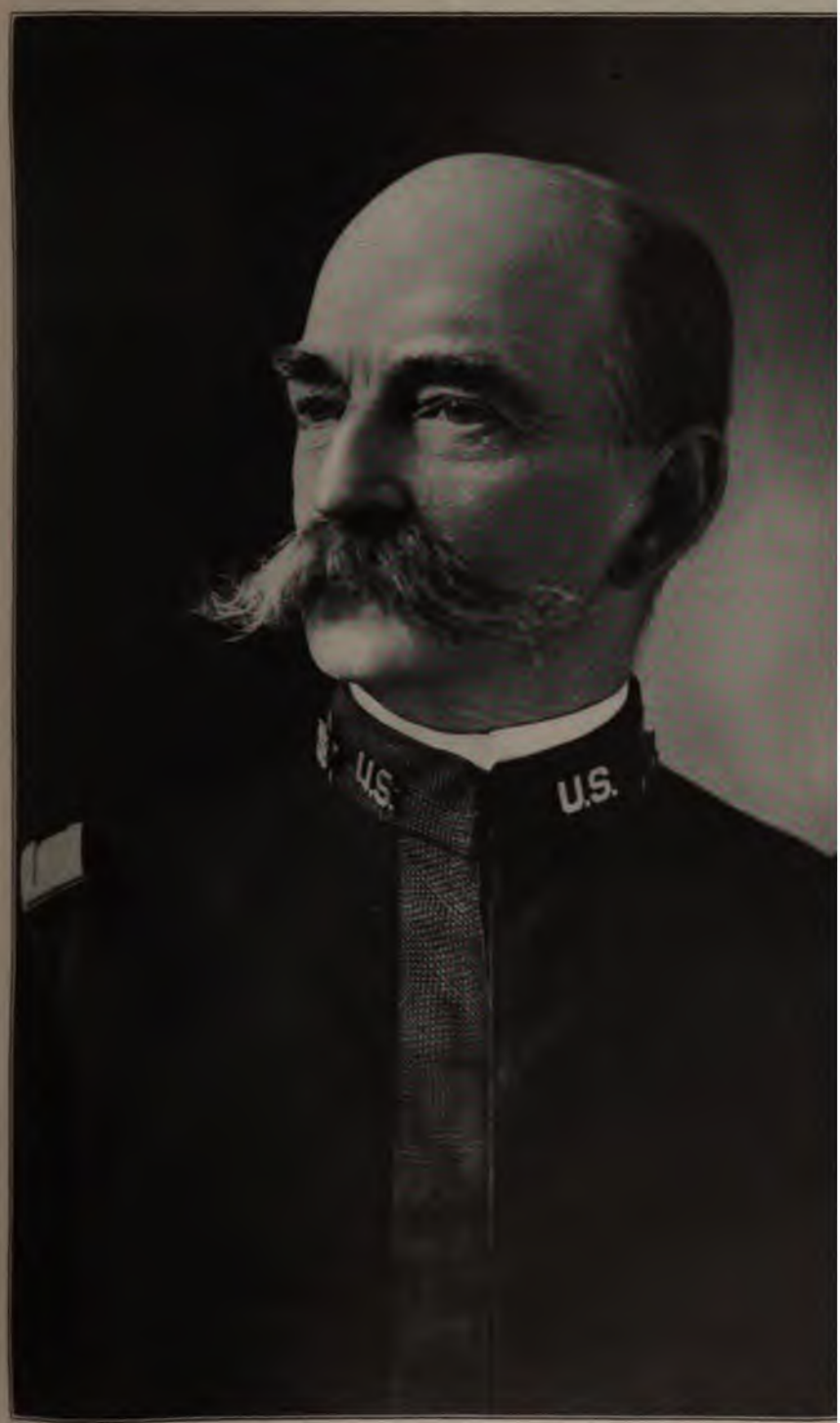
If there is any one fact plainer than all others it is that the United States does not want any more territory in Central America or the Caribbean, any more Latin-American peoples to govern, any more race problems to handle. The one way out of the situation, therefore, is to make these Central American countries govern themselves peacefully.

In this plan to prevent serious and permanent entangling alliances it is necessary for us to have a temporary moral suzerainty over some countries — until they shall learn to govern themselves properly. When this time shall come we shall have valued neighbors instead of sources of anxiety. The constructive course to pursue is to see that Central America governs itself.



MR. ROBERT LANSING

OF WATERTOWN, N. Y., A DISTINGUISHED AUTHORITY ON INTERNATIONAL LAW, WHO WAS RECENTLY CHOSEN TO BE COUNSELOR TO THE STATE DEPARTMENT TO SUCCEED DR. JOHN BASSETT MOORE



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MAJOR-GENERAL W. W. WOTHERSPOON

WHO, ON APRIL 22D, SUCCEEDED MAJOR-GENERAL LEONARD WOOD AS CHIEF OF THE UNITED STATES ARMY

MR. ALFRED NOYES

THE YOUNG ENGLISH POET WHO AS VISITING PROFESSOR WILL EVERY YEAR GIVE A COURSE OF LECTURES ON ENGLISH LITERATURE AT PRINCETON UNIVERSITY

[See "The March of Events"]

MR. S. S. McCLURE

WHOSE AUTOBIOGRAPHY IS A REMARKABLE RECORD OF THE CAREER OF ONE OF THE MOST INTERESTING AND USEFUL EDITORS OF HIS TIME

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DR. WILLIAM BAYARD HALE

WHO WAS PRESIDENT WILSON'S SPECIAL AGENT TO INVESTIGATE THE CIRCUMSTANCES GENERAL HUERTA'S RISE TO POWER IN MEXICO AND WHO WRITES IN THIS ISSUE OF IE "WORLD'S WORK" ON OUR RELATIONS WITH MEXICO AS AN EXAMPLE OF OUR NEW LICY TOWARD OUR NEARER LATIN-AMERICAN NEIGHBORS

(See page 52)

A STRUGGLE TO SAVE A PARTY AND A PRINCIPLE

THE struggle over the repeal of the clause of the Panama Act exempting American coastwise shipping from paying tolls furnished one of the most dramatic scenes that the House has witnessed since "Uncle Joe" Cannon defied the insurgents who were destroying his power. In this case, too, the Speaker of the House was the central figure, for, whatever the motives that prompted Mr. Clark's opposition to the President, its success or failure measured the extent to which the Democratic Party in the House had become an efficient party under the President's leadership. If Mr. Clark's opposition had beaten the bill, the Democratic Party would have been back in the position of incompetence and dissension that it occupied for so many years. But the President's extraordinary victory shows, even more clearly than the passage of the tariff and the currency bills, that the Democratic Party, even under severe strain, has cohesion enough to work. That is the most apparent result of the struggle.

The less apparent result of the struggle is its effect on foreign nations. Practically all foreign nations felt that we had broken a treaty. The effect of this feeling upon our relations with Europe was not good and yet, as most of the European nations have had many dealings with us, they were not disposed to make capital out of it. But in South and Central America it is otherwise. We are trying to establish friendly relations to the south of us in the face of a prejudice against us as people who employ sharp practices. The people who fan the flame of this prejudice need nothing better as fuel than our repudiation of the treaty concerning the Canal tolls. This is especially true since our acquisition of the Canal had previously aroused their suspicion.

The repeal of the tolls' exemption will not entirely allay the ill feeling which it originally created, particularly since Mr. Clark and others who believe in the free tolls clause either stated or insinuated that England forced its repeal. The fact that this statement is entirely untrue will not prevent its being taken advantage of by our ill-wishers in Latin America. Despite these things, however, the repeal will leave the United States in a far stronger position with Latin America than before and with a record of fair dealing to build upon.

These are the practical effects in home politics and abroad of the maintenance of our treaty. The struggle has shown that the party in power is capable of staying together and attending to business and that the United States still has respect for its own word and "a decent respect to the opinions of mankind" which Jefferson gave in the Declaration of Independence as one of the reasons for that historic document.

II

The wording of the Hay-Pauncefote treaty itself leaves little doubt that we cannot, under its provisions, allow American shipping to go through the Canal free while other shipping pays tolls. Mr. Choate, who helped make the treaty, has no doubt about it. Moreover, the history of the negotiations makes it perfectly plain that we asked no discrimination. For example, the instructions that were sent to Mr. Rives, the American negotiator of the treaty that preceded the Hay-Pauncefote treaty, said that:

"The United States sought no exclusive privilege or preferential right of any kind in regard to the proposed communication, and their sincere wish, if it could be found practicable, was to see it dedicated to the common use of all nations on the most liberal terms and a footing of perfect equality for all. That the United States would not, if it could, obtain any exclusive right or privilege in the great highway which naturally belonged to all mankind."

There is no doubt that before we built the Canal we led the world to believe that it was to be for the commerce of the world without discrimination.

There is no doubt, either, that if we wish to discriminate we can do it. No nation is in a position to force us to live up to the treaty and certainly no nation has a disposition to try.

The only question is whether we wish to maintain our self-respect and "a decent respect to the opinions of mankind."

THE SHOE ON THE OTHER FOOT

MR. HORACE C. MACFARLAND, in an address delivered before the American Society of International Law, called attention to the parallel between the controversy over the tolls of the Welland Canal in Canada and the controversy over the tolls of the Panama Canal.

In 1871 we made a treaty with England by which citizens of the United States were to secure the use of the Welland, St. Lawrence, and other canals in Canada on terms of equality with the Canadians. Under this treaty the Canadian Government charged 20 cents a ton on merchandise in all ships going through the Welland Canal, whether Canadian or American. However, if the cargo was carried to Montreal or beyond, the Canadian Government rebated 18 cents a ton. The practical result of this was that merchandise going through the canal to American ports, usually in American ships, paid 20 cents a ton toll, and merchandise going to Canadian ports (Montreal or beyond), usually in Canadian ships, paid 2 cents a ton. Technically this was not a violation of the treaty, for if American vessels carried merchandise to Montreal they got the rebate and if Canadian vessels unloaded at American ports they lost the rebate. Practically, however, the rebates constituted a great discrimination and, therefore, they were certainly in violation of the spirit of the treaty. When this condition was brought to President Cleveland's attention he said (in his message to Congress of August 23, 1888) that:

"To promise equality and then in practice make it conditional upon our vessels doing Canadian business instead of our own is to fulfil a promise with the shadow of performance."

Canada rescinded the provision for preferential tolls. If we should remit the tolls on our coastwise vessels going through the Panama Canal, we should hardly be giving even the shadow of a performance as the fulfilment of our promise; for though American vessels in 1888 could carry merchandise to Canadian ports through the Welland Canal and get a rebate equal to that given Canadian vessels, foreign ships are now prohibited from engaging in American coastwise trade and there is no way in which they could claim the exemption of tolls for coastwise business through the Panama Canal.

THE FEDERAL RESERVE DISTRICTS

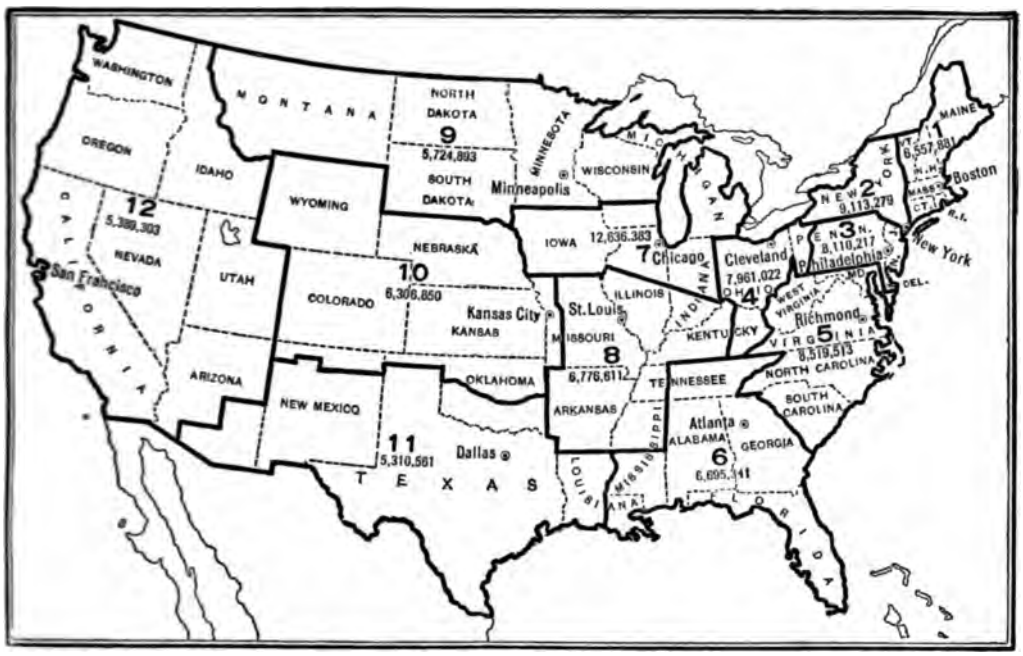
THE first new piece of machinery for the new currency system is now provided. The organization committee, Secretary Houston, Secretary McAdoo, and the Controller of the Currency, Mr. John Skelton Williams, have announced the division of the country into twelve districts, the maximum allowed by the law. The twelve reserve cities are Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco.

Notwithstanding that the district assigned to New York City is only New York State, the capital of its reserve bank will be more than half again as large as that of the Chicago bank, which is next in size. The Chicago bank will serve a population of about twelve and a half millions and the New York bank about nine millions. The Atlanta bank will have the smallest capital and the Dallas bank will serve the fewest people.

The announcement of the districts was followed by protests from such cities as Pittsburg, New Orleans, Baltimore, Omaha, and various others that felt that they might have been chosen, and particularly from New York, which felt that it was being unjustly deprived of northern New Jersey and Connecticut, two communities which are in the habit of banking with New York.

The Committee did not give the reasons which prompted its selections, but it would seem that they felt New York's present preponderance to be somewhat due to the artificial conditions that were created by the old National Bank Act. But whatever their reasons, they have left New York only half again as large as the next largest bank, and have given all New Jersey to Philadelphia and all New England to Boston.

The banking fraternity in New York



THE FEDERAL RESERVE DISTRICTS

THE CITIES THAT WILL HAVE THE REGIONAL RESERVE BANKS, AND THE POPULATIONS OF THE DISTRICTS

feels that it should have the contiguous territory north and south of it, and that sooner or later that fact will become sufficiently apparent to warrant the Federal Reserve Board in enlarging New York's district, which the Board will have the power to do. And New Orleans feels that it should have had a reserve bank instead of Dallas, etc.

Whether these contentions are right or wrong, there is probably not a banker in the country who has made a study of the currents of trade all over the United States which would enable him to make any scientific division of the country into districts. The Committee itself, even though it has heard testimony all over the country, would probably have appreciated two or three years in which to gather information if that had been possible. The problem is new, and for that reason the Committee's settlement of it is not as good as it would have been had there been years of experience to guide it. For the same reason a good deal of the comment on the arrangement, even the more disinterested comment, is not as valuable as if the commenters had had experience with Federal Reserve districts, or had made an exhaustive study of the United States in relation to such districts. As it is, we shall take the districts and the reserve cities that are given us and in all probability get along very well. If we do not, it will be the duty of the Federal Reserve Board to change the districts so that we shall.

While the experiment is going on it is well to remember that even national banks in one district may do business as before with banks in other districts if they wish to. They will have to keep reserves with, and get new currency from, the reserve bank of their district, but otherwise they can deal with whom they choose. This fact in time ought to give us some fair basis upon which to judge whether or not the districts as now arranged should be permanent or not.

MR. UNDERWOOD'S VICTORY

MR. OSCAR W. UNDERWOOD, the Chairman of the Ways and Means Committee, and the strongest personality in the House of Representatives, won the primary which insured his election as United States Senator from Alabama. His abilities will be a welcome

addition to the Senate. On the other hand, his leadership will be a great loss to a none-too-strong lower House, so much so that many who believe most thoroughly in Mr. Underwood regret his elevation.

Neither Mr. Claude Kitchin nor Mr. A. Mitchell Palmer, who have been mentioned as Mr. Underwood's successor, has shown that he possesses in such measure the leadership and the balanced judgment which have made Chairman Underwood so valuable to the country. At this time these qualities are particularly needed because there are more new members and consequently less experience in the House than there have been for many years.

ANOTHER PENSION BILL

THE House of Representatives has passed a bill to pension the widows and minor children of veterans of the Spanish War. The term "veterans" includes all men who served in the Army as much as ninety days, whether they were in any way injured and irrespective of whether they left this country or saw any active service. Their widows (unless they have other means of support) get this pension even if they married after the war was over.

In other words, a woman who married a volunteer who had spent three months in camp in the United States in 1898 without the slightest injury to himself but later got killed in an accident — this woman may collect $12 a month from the Government if she needs the money. This holds even though her husband's military service, for which he was paid at the time, was in no wise connected either with her widowhood or her poverty. Even if it had been, she accepted him as he was when she married him, with all his imperfections on him whether they arose from his three-months' camping or from any other cause. There is no reason in the world why the Government should give a widow in these circumstances a pension except that she is in need. On that basis, however, there are many thousands of other widows who are just as deserving.

The bill will also benefit widows who had married previous to the war whose husbands' health suffered from actual service or sickness in camp. These widows' interests were hurt by their husbands' service and they, therefore, deserve compensation.

But this bill, like most pension bills, puts the deserving and undeserving in one class and pays them all.

There is a story current in Washington that when the Sherwood Pension Act passed Congress the burglar alarm in the Treasury Department went off.

It might well ring almost any time when pension matters come up, for it has become one of the most evil and corrupting influences in national politics, and it might very well ring for this bill because it has the earmarks of being the entering wedge of a long series of vicious gratuities to be given as political pap to the Spanish War veterans, their widows and children, just as similar pensions have been given to the veterans of the Civil War and their families, deserving and undeserving alike. Our pension system is unfair to the men who really suffered in the service of their country, it is a needless expense to the Nation, it pauperizes many undeserving people, and it saps the courage of more Congressmen than any other special interest in the country.

A COUNTY AS AN AGRICULTURAL FACTORY

IF A furniture factory worth $18,000,000, with an annual output of $4,000,000, were owned by its operatives, and if the individual workmen bought their raw materials, made their own working plans, and sold their product themselves, the business would, of course, go into bankruptcy. If, however, the factory were properly equipped with purchasing agents, salesmen, and trained specialists, and if it were properly organized, its employee ownership would be an advantage and not a detriment, for it would give a tremendous stimulus to the working force. Carry the comparison into agriculture. Before the County Improvement League took hold of the agricultural affairs of Hampden County, Mass., that $18,000,000 business was conducted individually by the farmers. Instead of devoting all their attention to

the treatment of the soil and the production of crops, these working owners were obliged to spend a large portion of their time in purchasing and selling. Naturally, there was not much time left for the study necessary to make them better farmers.

The Hampden County Improvement League was organized in Springfield, Mass., in January, 1913, and its first efforts were directed toward improving the soil, crops, live-stock, and farm management of the county, the local manufacture of farm supplies and products, and coöperative buying and selling. A general secretary and manager was engaged, besides an agricultural adviser and a horticultural adviser.

The advisers made more than 650 farm visits in 1913, giving assistance in various departments of farm management and practice. Coöperative exchanges were organized to buy fertilizers, lime, spraying materials, live-stock, apple barrels and boxes, and to sell the produce. Fruit, vegetable, and dairy shows were held, and local farmers' clubs and fruit growers' associations were formed. In one year general agricultural conditions in the county showed a great improvement.

In other words, the League made the beginnings of an organization such as makes our industrial activity so much more effective than our agricultural efforts.

Then the leaders of the League found their activities broadening out to include all the economic, social, moral, and educational interests of the rural districts, and they are now in the fight not only for better agriculture, but for better homes and better men and women. They are organizing the community life of the county. Social service and educational departments have been established, and sanitation, hygiene, domestic economy, and rural recreation have received attention.

The reason that cities have been more attractive places to live in than the country is that social intercourse, communication, and buying and selling are organized in town and not in the country.

Economically and socially the problem of country life is to get an organization. It can be met only by each community taking itself in hand. The Government and all other outside agencies may stimulate organization by information and advice, but in the end the real work of country organization must be done locally and must be supported by local enthusiasm and understanding.

A PROBLEM OF DIVISION

IN A certain large department store in Boston, a group of employee representatives meet jointly with the management to determine the administration of the business. This store has the democratic form of government.

In the Middle West is a big soap manufactory of which the employees own a large proportion of the stock. Dividends on the stock are from 12 to 18 per cent. and the employees receive a like interest on their wages. Labor strike agitators find a small field here.

In Germany, an employer advances funds to his workers to enable them to build homes. In this way he substitutes for their feeling of dependence one of self-respecting ambition.

These are only a few examples of the modern tendency toward democracy in business relations. They, and many others, were shown in the Exhibit of Better Industrial Relations, held in New York during the week of April 18th to 25th, by the Business Men's Group of the Society for Ethical Culture.

The aim of the exhibit was to show those activities in industry which recognize the human element and better the conditions of employer and employee. If our industrial civilization is to be a success it has got to work more smoothly than it does now, for in the friction that now prevails thousands of workers are ruined and many enterprises that could support other thousands of people are destroyed. Employers and employees are too far apart, and their aloofness (partly the cause and partly the effect) is the sure sign that our industry is not organized properly. In the first place it should be more effective so that it would make more money to divide. In the second place it should divide the money more fairly. And if it did divide more fairly, the stimulus of such division would make more to divide.

The faults of our industrial leaders have been told over many times. Greed, lack of foresight, and lack of fair dealing by many employers have delayed the harmonious constructive effort of employer and employee. A. the same time, despite the benefits which collective bargaining has brought, the labor union practices, based on shortsighted and narrow conceptions, have likewise retarded proper development. As former President Eliot, of Harvard, says:

> Is it not perfectly plain that in our country the trades unionists are not really happy as a matter of fact? To my thinking they never will be, so long as they get no satisfaction in their daily work. It is the grudging spirit in which they work which prevents them from getting any content out of their work for a livelihood.
>
> All well read, thinking people believe that the progress of civilization depends on universal, steady, productive labor; the unions seem to believe that the less one works the better.
>
> Although profit-sharing is not applicable in all industries, I see in sound methods of profit-sharing one mode of escape from the deplorable effects of trades union teachings; for just profit-sharing will present to employer and employed alike precisely the same motive for faithful, generous, coöperative industry and for successful productiveness. No profit-sharing method will work which does not turn out to be in the long run profitable alike to employer and employed, to owner and wage earner, to capital and labor.

The problem is to find a working arrangement that will make business more efficient so that there will be more profits to divide, and at the same time to provide a scheme of division that will stimulate every one, from the top of industry to the bottom, to their best endeavor.

A ROAD DEMONSTRATION

ALL the country and city authorities along the route of the great highway from Washington to Atlanta have promised to pay for the maintenance of this road under the supervision of the engineers of the United States Office of Public Roads. For the first time in our history we are to have about 600 miles of continuous good road under expert care. This project ought to give a great stimulus to road maintenance, not only by showing how well it can be done, but also how cheaply it can be done. For it is fair to say that waste, incompetence, and graft, one or all three, are generally in evidence where roads are built in the United States; and our maintenance is usually less well done than our building. These sad facts apply perhaps even more to the country roads than to those in the cities.

The Washington-Atlanta highway ought to furnish a national demonstration of how to maintain a road properly and of what such maintenance should cost. The influence of a standard of this kind should be tremendous, not only in the counties through which the highway goes, but all over the country. It is time that we, as a people, took our roads in hand honestly and efficiently to keep them in proper condition for the profit of our farmers and for the social convenience of all people who live in the country, and to end one of the greatest wastes which hampers our efficiency as a nation. There could hardly be a more spectacular or effective stimulus to such a movement than the object-lesson highway from the Capital to Atlanta.

WHAT THE IRISH QUESTION MEANS TO ENGLAND

NO LESS a person than Sir Edward Grey, England's Foreign Secretary, has suggested a change in the present organization of the British Empire; the War Secretary, Colonel Seely, was forced to resign; and the Prime Minister has taken that office as well as that of First Lord of the Treasury, which he already held. A field marshal and many other officers have resigned, and the undemocratic system of officering the British army has called attention to itself in a way that may result in its modification. A hundred thousand or more British subjects are in arms ready for revolution. Even the King's name has been subjected to a hostile demonstration in Parliament. Previous to these recent events the power of the House of Lords was so much curtailed as to leave it negligible. The curious part of all these happenings is that their cause

is not an English question but an Irish question — *the* Irish question, home rule.

For half a century the Irish Nationalists in Parliament have struggled to get a government of their own. But whether or not Ireland should have it, England refused it until in the turns of politics it came about that the Home Rulers held the balance of power between the two English parties.

Having arrived in this stategic position, they have the long-sought-for measure almost within their grasp when Ulster takes the same stand against them that they have so long taken against England, and shows a willingness to back its contention in arms.

The Liberal party has staked its continuance in office, and, therefore, for a time at least, its programme against inherited privileges, on the passage of some kind of a Home Rule bill that will satisfy the Irish party. The House of Lords opposed it and was shorn of its power. Now the army opposes it. We have still to see what the result of this opposition will be. For a few days it was supposed that the King had interfered in behalf of the army, and there were speeches in the House of Commons that showed small appreciation of Royal interference. All these things, which intrinsically have no connection whatever with the Home Rule question, have become inextricably mixed up with it.

The party in power under Mr. Asquith, like most coalitions, stands for two totally unconnected policies at once; and though this double purpose has given the party a majority it has also given it elements of weakness. There are undoubtedly many Englishmen who believe in Liberalism who are not in favor of coercing Ulster, and on the other hand there are certainly many Home Rulers who would vote for almost anything for England that meant home rule for Ireland.

ALFRED NOYES

ON APRIL 9th the election of Alfred Noyes as "visiting professor" of Modern English Literature was sanctioned by the trustees of Princeton University. This is another step in the intellectual fraternity of the *nations that* has been so successfully fostered by the system of "exchange professors" that universities in America, Germany, and France have adopted.

But Mr. Noyes has a mission that may be peculiarly valuable to us who are perhaps the least tolerant of all peoples toward "mere literature." Here is a poet who makes his living solely by writing poetry and lecturing about poetry. He is, so far as contemporary opinion can settle the matter, a producer of genuine literature. But his ability breeds no peculiarities. He believes — and succeeds in proving to skeptical "business men" — that there is nothing aloof from every-day life in the true spirit of poetry. In his own life and personality he is insistent upon normality. He is a healthy, six-foot young Englishman, who rowed three years on the Oxford crew, a vigorous man who wears the same kind of clothes other men wear and wears his hair as other men wear theirs.

Mr. Noyes has set himself the task of proving that poetry and action can be as close akin now as when Sir Walter Raleigh turned from writing verse to harrying the Spanish Main. Only the springs of action have changed with the times, and Mr. Noyes writes more vigorously in favor of peace than most of the older poets wrote in praise of war. It is doubtful if there is in the English language a more unsparing arraignment of the causes of war or a more appalling picture of its futility than his most recent work, "The Wine Press."

FIGHTING THE DEVIL WITH MAPS

THE New York Federation of Churches has sent to all the Protestant clergymen that live within twenty-five miles of the centre of New York City a full outline of a method by which they may become really efficient in their work.

Sensibly enough, the first suggestion in this programme is that the clergyman shall map his territory so that he may know what he has to fight and where his enemies are. The Federation's circular describes a simple method of making such a map. It directs the clergyman's attention to the recent reports of the Federal

Census and points out that they afford an easy means to determine the relative strength of various nationalities in his neighborhood. It advises that he learn about the shops, factories, parks, and other institutions to which he may extend his influence. It then gives exhaustive practical suggestions for active work. Here are a few of these suggestions:

Coöperate with the Tenement House Department to banish dark rooms. For method apply to the Federation.

Coöperate with the Board of Health in the care of milk stations.

Assist the Association of Tuberculosis Clinics in conducting the nearest neighborhood clinic or day boat camp.

Organize the children through the public schools for a periodic "Spotless Town" campaign.

Ascertain the moral character of any employment bureau in your district.

Acquaint your district's people with the city's recreation resources by organizing visits to museums, zoölogical gardens, parks, and playgrounds.

Regard the police as an ally and develop a personal acquaintance with them.

Organize a committee to coöperate with any neighborhood home for the aged.

From the fifty or more suggestions that are given in the Federation's circular, any clergyman can select enough definite activities to bring him fully into the life of the people about him.

The charge that has been most commonly made against the Church is that it is out of touch with the world. This movement in New York is one of the many hopeful evidences that the Church is coming back into touch with daily needs of the people, and putting its organization and its influence at the service of the State.

CONTROVERSIES OF RACE AND OF RELIGION

RACE and Religion stand as the two most formidable opponents of world peace or universal understanding. Governmental abuses which lead to civil war may be reformed. The desire for profits that stirs up many wars may be restrained. On these topics men will listen to reason. But in differences that are based on religion and race, pride and prejudice play a larger part than the appeal to reason. In Ulster the Catholic Celt and the Presbyterian Scot, neighbors of two hundred years' standing, have nursed their antipathy until it has unsettled all England. The Ulstermen around whom the controversy wages live chiefly in four little counties in the North of Ireland and number altogether much less than a million. Yet they urge their cause so stubbornly that the affairs of sixty times their number of people are deferred to the Ulster question.

Members of Parliament from the Catholic counties of Ireland cheered when the British army suffered reverses in South Africa. That was twelve years ago, but those cheers have something to do with the aversion with which the English army looks upon coercing Ulster into joining the rest of Ireland now. There have been many other contributing irritants in the situation. But, underneath, the fundamental difficulties of the Irish question rest upon differences in race and religion. On these questions men are apt not to reason but to feel.

In the Balkan Peninsula are Serbs, Bulgarians, Albanians, and Turks, Roman Catholics, Greek Orthodox Christians, and Mohammedans. There are Serbs in Servia, in Montenegro, and millions over the border in Dalmatia, Croatia, and other provinces under Austrian rule. The lines of racial cleavage and of religious cleavage and the limits of the governments do not coincide. They coincide better now than before the last war, and therefore that was a step toward peace, but there are still Mohammedans in Christian countries, Roman Catholics in Greek Orthodox countries, and many other complications which even now leave the Balkans a fertile ground for intrigue and the play of passion.

A homogeneous people may come of many different strains of blood, but so long as they are homogeneous and intelligent they are likely to be free from the troubles that arise from racial and religious intolerance. So far this has been our happy lot. If, however, we encourage or allow the immigration of great numbers of aliens faster than we can assimilate them, we are

preparing a fertile soil for discrimination and disturbance in the future.

This is what we are doing at present. We are inviting to our shores the seeds of discord. This is not necessarily because of any differences between the present immigrants and their predecessors, though there seem to be points of difference, but because they are coming faster than we can make them homogeneous with ourselves and enlightened according to our standards.

II.

There are two kinds of people who see very clearly the seeming advantages of the present immigration system under which 229,155 people, chiefly unskilled laborers, came to the port of New York during four months last winter when there was not too much work for those who were already here. The great employers of unskilled labor — the railroads, for example — feel the need of a cheap labor supply that constantly renews itself. They want immigrants because they need them for rough work.

But with those who work on the railroads, in the mines, and in the mills, others come in who never get farther than the city slums. Even those who go into the mines and mills are not an unmixed advantage to the country, as recent events in West Virginia and Colorado clearly show. Perhaps if we got along with a much smaller and better selected stream of immigration the net result might be better even so far as the large employers are concerned.

There is another class, however, who believe in a hospitable attitude toward the foreign poor that seek these shores. They take the somewhat unpractical ground that as America has always been the asylum of the oppressed, the doors of hope should not be closed now. They overlook the fact that by taking more immigrants than we can assimilate we are ruining the very asylum which has made America attractive, that we are tending to reproduce the very conditions from which the foreign laborers try to escape when they come here.

We have certainly reached a time when the safe and wise course is to restrict in many ways the immigration which we are now getting, for it is fraught at least as much with problems as with productivity.

GETTING BACK TO NORMAL

A FAMOUS editor and publisher is reported to have said while lecturing in Chicago that "the public is getting tired of having 'sex' eternally dinned into its ears." He said:

"I predict confidently that within a few months sex problem stories and series will be banished from the reputable magazines."

Haven't they always been? Would it not have been nearer the facts to have said that of late some otherwise respectable magazines have "featured" the sex problem story, in the hope that it was a "get-rich-quick" road to profits? If it proved profitable, it was not the only road to profit, for many respectable magazines kept the accentuated sex stories out of their pages and still survived. The public demand, if there was one, for such matter was not so universal but that it could be disregarded without fatal consequences. In fact, the continued publication of semi-indecent matter is much more likely to lead to failure than is the continued publication of decent matter.

The publisher said also that "what the readers want now is a little of the good, old-style fiction that writers have found it hard to sell recently and special articles along uplift lines that are at once interesting and constructive."

They always did. Perhaps they are a little tired of "uplift" as they are of "muck raking," but the public likes now and always has liked good clean fiction and "interesting and constructive" special articles.

THE IRREPRESSIBLE MR. SHAKESPEARE

THE hit of the recent theatrical season was undoubtedly the plays of Shakespeare. Mr. Sothern and Miss Marlowe had a repetition of their former success in their yearly Shakespearean repertory. Miss Margaret Anglin transferred her vivid personality from emotional drama to the delightful — and successful — production of Shakespearean comedies. The Ben Greet players, and the Benson players from England, have toured the country in these old, perennially new

dramas. And Sir Johnston Forbes-Robertson appeared in "Hamlet" as one of the plays of his farewell tour. The critics are always claiming Shakespeare as their especial prey for dissection and discussion, but the public now as heretofore love him and pay to see his plays produced.

A PUBLIC DEFENDER OF THE POOR

THERE is a new kind of law officer appearing in the courts of Los Angeles County, California. A Public Defender pleads the cases of the poor. A poor man accused of a crime whose case reaches the Superior Court can call upon the lawyer who fills this recently invented office. Elsewhere in the United States the court appoints a lawyer to represent defendants who cannot hire their own counsel. In some cases able counsel are appointed. In other cases they are not. In Los Angeles County the poor defendants have a county officer to defend them just as they have a county officer to prosecute them. Presumably the counsel are equal in ability and the truth will out. This seems a very sensible arrangement, for, after all, the best interests of the county are served when everyone has an absolutely fair trial, and that can hardly be when the poor are defended by mediocre counsel and are prosecuted by able men.

Besides the criminal cases of poor in the Superior Court, the public defender takes civil cases in which the defendants seem unduly harassed by creditors. He is also empowered to institute civil suits to collect debts of less than $100 for the indigent. This enables him to collect workingmen's wages for them, which they are more or less powerless to collect for themselves because of the cost of litigation.

Los Angeles County's unusual experiment began in January of this year. Public Defender Walton J. Wood obtained the position by a civil service examination in which he stood highest among fifty candidates. During the first month nearly a thousand applicants brought their cases to the new office. More than half of the applicants were found to be deserving but so poor that they were unable to hire an attorney. In most of the civil cases the public defender, with the prestige of his office, has been able to settle the cases out of court.

The creation of a public defender provides a better method of handling the cases of the poor than the system of appointing lawyers to serve without fee, for if these be men of ability whose time is valuable they are tempted to slur such cases for more remunerative work, and if they be men of little ability but plenty of time their counsel is not worth much. It is another step away from the time when justice was a commodity to be bought, and toward the millennium — still somewhat in the distance — when it shall be automatic and free to every one.

THE Y. M. C. A. IN THE COUNTRY

IN AN isolated community in Massachusetts a saloon keeper, noting how the young people of the village flocked to the church sociables, determined to conduct sociables of his own. He fitted up rooms for the purpose, and he soon had his parlors filled with dancing young people, and intoxicating drinks were not barred.

The churches were helpless in the face of this competition, and the social and moral life of the community rapidly degenerated. Then entered a new element, the non-sectarian Young Men's Christian Association. The "county work" leader devised competitive social attractions, and he put them through with such enthusiasm that he soon had the young people with him. During Christmas week the saloon keeper made a final bid for supremacy with a garish carnival, but the Y. M. C. A. leader met him with three separate social events in a series, and on the night of the carnival most of the young people were in church. The monopoly of the social life of the community has now passed back into the hands of the decent people.

Similar stories of moral regeneration might be told of hundreds of other rural communities from Maine to California.

Dr. Robert Weidensall, in 1872, organized the first rural Young Men's Christian Association in DuPage township, Will County, Ill. The following year a county-wide movement was set on foot in Mason County, Ill. By 1906, this movement had

so successful in different parts of the try that it was organized as a depart- by the International Committee of '. M. C. A.

survey showed that only 40 per cent. merican young manhood could possi- e reached by city work. There are, ıly, 45,000 rural communities in the d States and Canada in which this might be organized, to reach, in all, than 12,000,000 young men and boys. officers of the Y. M. C. A. early decided ake the county the unit of their work, they found that 2,000 counties in the d States and 500 in Canada were ted to it.

-day, eighty-nine of these counties been thoroughly organized, and others eing surveyed. Work is going on in s under state supervision. More than ıundred trained secretaries are in the mostly college men, and others are given a careful course in preparation. than 25,000 young men and boys are bers of these county associations, and than 3,000,000 people are being di- y reached. Nearly $400,000 a year is ıvailable for the work.

e rural secretaries work with the sup- of influential local committees. Every t is made to coöperate with churches other agencies for betterment. Better ing, agricultural instruction, good roads, r schools, supplementary education, recreation, play festivals, corn clubs, camps, sanitation, sex hygiene, law cement, better home life, and religious of many sorts, are among the many ac- es of these county committees. Be- they bring together the better forces e rural community, regardless of de- national lines, and because they build l sides of community life, these com- es are having remarkable success in work of inspiration and regeneration.

PESTS THAT PAY

THE Federal Government and several state governments have spent more than 4 million dollars to fight rown-tail and gipsy moths; they have more than 5 million dollars to fight oll weevil; they have spent more than 2 million dollars to fight the cattle tick. Besides these direct expenditures, the cost of these pests to farmers through the destruction of crops, trees, and cattle amounts to more than 3 billion dollars.

These losses are largely the price we pay for belonging to the family of nations, for several of the most destructive pests were imported from foreign lands. They are also the price of ignorance and neglect, for our lawmakers and our farmers have refused to take up the fight against these pests at the request of "mere scientists" until too late for first-aid measures to be effective. Elsewhere in this magazine Mr. E. L. D. Seymour describes the dramatic advance of these devastating invaders, and the stupidity of some of our people in refusing to face them.

But in some directions their depredations have been disguised blessings. They have probably taught more farmers the practical value of science than almost any other form of teaching could. They have probably had more influence than any other one thing upon the attitude of legislators toward the great problems of rural life. But what a price to pay! If only they can fix upon the public mind the importance of high intelligence in the practical issues of life — then, what a gain!

THE OVERSEAS NUMBER

AMERICA Overseas consists of lands, peoples, and responsibility — and the responsibility covers more than the flag. We have a great interest in the affairs of government from the Rio Grande to Panama, and in the Caribbean. We have dependencies in the Atlantic and in the Pacific which not only give us new problems of administration but a little different relationship with foreign countries. With these new lands and new relations the Army and Navy of the United States have taken on many new tasks and responsibilities.

The America Overseas Number of the WORLD'S WORK is devoted partly to explaining why it is we now take an interest in the kind of elections held in Honduras; how our policies are affected by the internal affairs of Haiti; what we have done in Porto Rico;

what impression American rule has made in the Philippines; how the American soldier has become a health officer, civil administrator, road builder, judge, jury, and fighting man all in one; and how the Navy, with four fortified harbors, can dominate the whole Pacific Ocean.

The American public is becoming more and more interested in the problems of our island possessions and in the problems arising from our relations with our Latin-American neighbors. To feed this interest is the reason for the America Overseas Number of the WORLD'S WORK.

OF BUYING STOCKS TO DODGE TAXES

A CLERGYMAN from New England came to this department a few weeks ago in a greatly disturbed frame of mind. He began his story by explaining modestly that for several years he had been fortunate in having a salary somewhat above the average, and that, before it had become necessary for him to provide financial assistance for his children in finishing their education, he had been an investor in a small way.

The beginning of his investment experience, in at least one respect, had been a happy one. He had for a long time been the target of a half dozen or more notorious "get-rich-quick" promoters, but he had escaped falling a victim to any of their schemes. He had fully realized that he lacked the proper qualifications to make it possible to go ahead on his own initiative and invest his savings discriminately. So his first concern had been to find someone upon whose judgment he might depend to prevent him from blundering.

A friend and neighbor was president of one of the local banks, and it was to him that the clergyman quite naturally turned for his advice. He went away from his first interview at the banker's office with the feeling that he was in safe hands. One thing in particular which had impressed him as a mark of the proficiency of his adviser was what the banker had said about the importance of considering the way in which securities were affected by the property tax laws of the state.

Practically all forms of investment, the banker had explained, except Government bonds — which were placed beyond the reach of state and local assessors by Federal statute — and corporation stocks, were taxable at such rates as to amount almost to confiscation of the investor's income from them. Government bonds, he had sensibly pointed out, were a sort of investment luxury which few people could really afford to buy. They bore low interest rates, sold at very high prices, and returned a correspondingly low rate of income, not for the sole reason that they were perfectly safe, but because, when owned by national banks, they conferred special privileges which the individual could not take advantage of. The problem in the clergyman's case, therefore, seemed to be to find something in the category of "exempt" stocks, on which the yield would be good and the risk negligible. That, the banker had assured him, would not be difficult, but it would, perhaps, be well to take a little time to study the question thoroughly before undertaking to make a definite choice.

With the aid of such records and reports as the banker had available, the qualities of a good many different securities were compared at subsequent interviews. There was at first the temptation to put the money into some of the local manufacturing stocks, which were then gaining rapidly in favor among investors in New England. But the banker showed some hesitancy about endorsing them as a clergyman's investment, and the choice finally rested upon two of the old, substantial dividend-payers which, at the time all this was happening, it would have been considered almost heresy to criticise from any point of view. They were the stocks of the Boston & Maine Railroad and of the Western Union Telegraph Company, which at the prices then prevailing gave the clergyman

erage rate of income on his investment ırly 5 per cent.

r several years everything went well this investment. But suddenly, in along came the announcement that l been found necessary to reduce the ern Union dividend, which had been cash basis of 5 per cent. a year since and that year the clergyman was left ering just why it was he had received that part of his investment only 1 per in cash, and the equivalent of 2½ per in stock. The same year there was a reduction, also, in his income from oston & Maine shares, foreshadowing in their regular dividend rate the folg year from 7 to 6 per cent. and later nission of the dividends entirely.

anwhile an alarming shrinkage had ı place in the market value of both s, and despite continued assurances the banker the clergyman found himapidly losing respect for his friend's ons. He dared not try now to make nge in his investments, lest he jump the frying pan into the fire. So he mined grimly to reconcile himself s losses and await developments.

ıen he wrote to this department re-y, he had begun to feel encouraged the apparently favorable turn in the s of the Western Union Company, ugh he said he did not like the appearof the spectre of governmental ownerf the telegraph lines. But he had beconvinced that, at best, he could not for any further return on his Boston ine stock for several years to come and ured that, if he were to retain the inents until 1918, completing a period een years of ownership, they would him an average return of only a fracnore than 3 per cent. on the cost price. , he added, was the measure of his sucin endeavoring legally to escape the ollector. And he considered it meaompensation, indeed, for all the anxe had been compelled to suffer.

is story is told here because it illus-ı a form of temptation to which an everısing number of investors seem prone eld without pausing to consider the ole consequences. Several readers come to this department *recently with* the criticism that it talks too much about bonds; that it seems to forget that in so many localities the personal property tax laws practically compel the investor to put his money into stocks. Last month, for example, a letter from one of these critics was printed in another part of the magazine. It pointed out that in Illinois, where the writer lived, a bond investment yielding 5 per cent. on the purchase price would net only about 3 per cent. after the payment of the tax. The argument in this case was that stocks like Chicago & Northwestern and Illinois Central were better investments than any bond. A Massachusetts reader wrote not long since:

"The 'Lesson of a Yankee Investor' seems to be to buy bonds rather than stocks. Evidently he does not live in Massachusetts, where all bonds, except those of the state and its subdivisions, and mortgage bonds where the mortgage is less (or not greater) than the assessed value of the real estate, are taxable yearly at about 2 per cent. on the average on their market value; that is, a 4½ per cent. railroad or industrial bond selling at par would yield its holder, if he paid his tax, about 2½ per cent."

These are examples of a kind of reasoning which is all very well for the alert business man or other experienced investor, but which is likely to prove dangerous for those whose circumstances demand that every consideration be given to the fundamental need in investments, which is safety of principal rather than high income. Experience has demonstrated that it is better in the long run for investors of the latter class to content themselves with the lower net income from bonds and mortgages than to assume the risks inherent in even the best of stocks.

Doubtless the time will come when all the states will recognize the necessity of working out, along sensible and scientific lines, the problem of the taxation of investment securities. Several have already done so, and with results which make it seem surprising that their example has not been followed everywhere. For their experiences have proved that the more reasonable the tax on the individual investor, the greater is the revenue to the state itself.

THE GREATER AMERICA

WHAT IT COMPRISES, HOW MUCH IT COSTS, HOW IT IS GOVERNED, HOW MANY PEOPLE INHABIT IT, WHAT WE AND THEY HAVE GAINED BY OUR RULE — A LOOK AHEAD FROM THIS SIXTEENTH ANNIVERSARY OF THE UNITED STATES AS A WORLD POWER

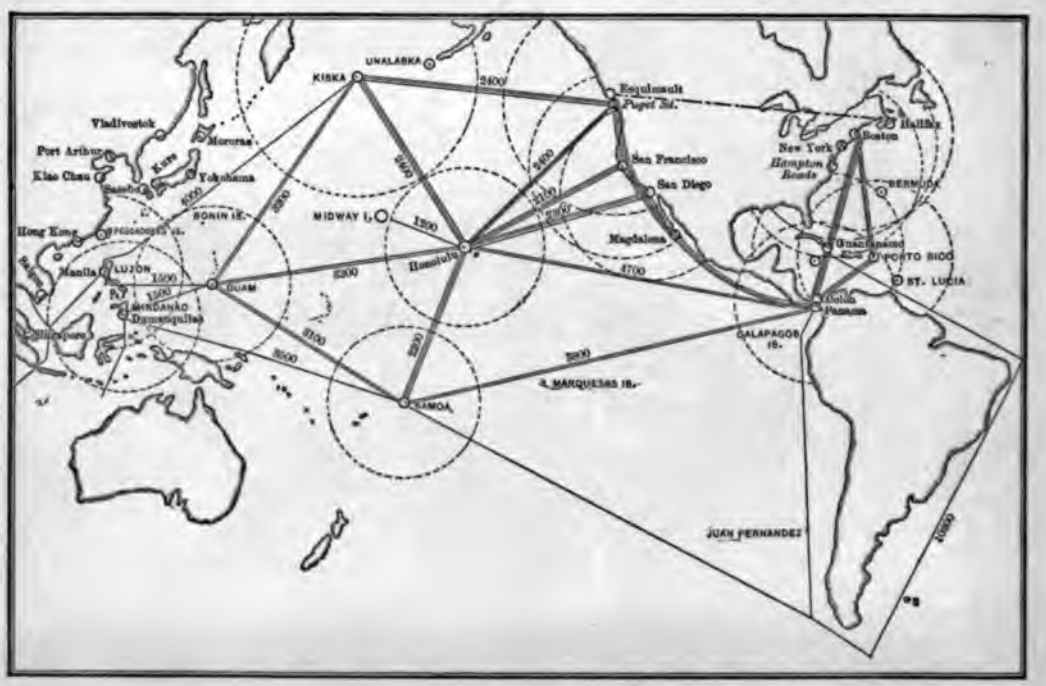
BY

GEORGE MARVIN

WHEN, in the late summer of 1898, Lieutenant (now Admiral) Fiske, navigator of the U. S. S. *Petrel*, took his ship back from Manila Bay across the China seas to dry-dock it at Hongkong, he and his fellow officers noticed a great change in the bearing of Europeans toward them.

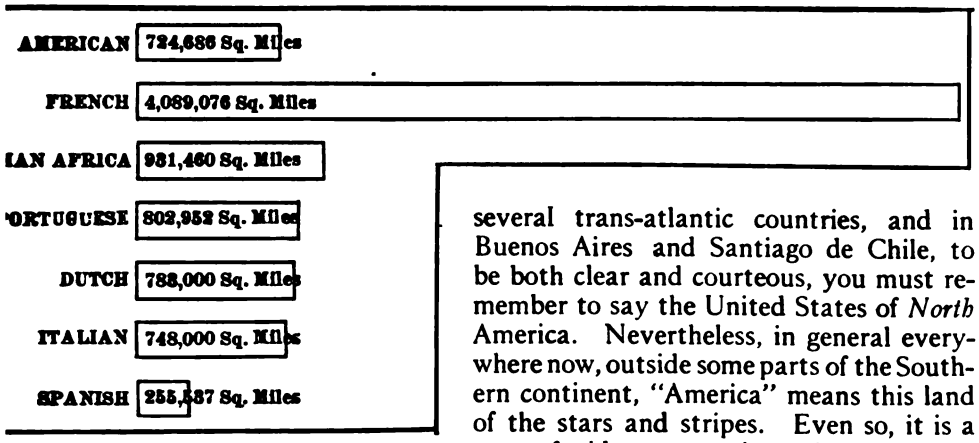
"We had not been used to being well treated," he writes, "or at least not as equals, especially by the English and Germans. Now we recognized a distinct change in their attitude toward us, and Consul Goodnow smiled when he told how Prince Henry had said to him that even if the United States should get Manila the Powers would not allow us to keep it."

That change which Admiral Fiske noticed at Hongkong, a few months after the first sea-fight of the Spanish War, has been going on ever since. It is noticed now in places other than Hongkong. Dewey's May-day victory, in which the nine-hundred-ton gunboat *Petrel* had a share, was merely the first and most dramatic of a series of events by which a nation of infinite but untried resources passed from isolation



HOW FOUR ISLANDS COULD COMMAND THE PACIFIC OCEAN

WITH GUAM, KISKA, SAMOA, AND HONOLULU FORTIFIED BY THE UNITED STATES, NO FOREIGN FLEET COULD ATTACK OUR PACIFIC COAST BECAUSE IT WOULD HAVE NO OPPORTUNITY TO COAL ITS SHIPS, AND BECAUSE AN AMERICAN FLEET, OPERATING FROM THESE NAVAL BASES, COULD DESTROY ITS SUPPLY TRAIN



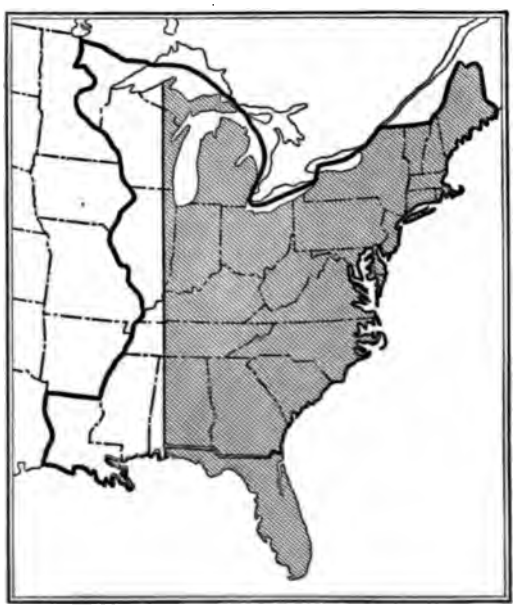
OUR OVERSEAS TERRITORY

'ARED TO EUROPEAN COLONIES. FRANCE OWNS MES AS MUCH NON-CONTIGUOUS LAND AS WE L, AND EVEN PORTUGAL AND THE NETHER-HAVE "EXPANDED" FURTHER

omparative unimportance to a posi-econd to one other only among the ıs of the earth.

merica" in April, 1897, did not mean America means in April, 1914. Just that change involves is the general of several articles in this issue of the D'S WORK. These articles are devoted mely taking account of national stock, ith a look backward so much as a fair of the present with whatever it may f development along seemingly des-lines. What are the new constitu-of the United States of America? progress have we made these sixteen in our new job as administrators of as dominions and their alien peoples? hree thousand islands of the Philip-Porto Rico, Guam, Tutuila, Hawaii, 'anama Zone, Alaska, and the far-Aleutian keys — they are all ad-tratively parts of the United States, n its different way American. Their ssion means vastly greater civil and ry responsibilities, added vexations, derstandings, rewards, and an im-rably wider vision, than were ours Gridley fired that first gun off Ca-ixteen years ago. This month of is the sixteenth anniversary of the d States as a World Power.

ome cafés of Paris, the capital where tin America spends its money, an rican" may come from any one of several trans-atlantic countries, and in Buenos Aires and Santiago de Chile, to be both clear and courteous, you must remember to say the United States of *North* America. Nevertheless, in general everywhere now, outside some parts of the Southern continent, "America" means this land of the stars and stripes. Even so, it is a term of wide construction. It is what the El Dorado tower of the Woolworth Building means to the Armenian immigrant staring across from Ellis Island at an unbelievable city rising dreamily in the early lights of morning; what the nervous twang of "Yankee" tourists in Swiss hotels signifies to irritated, insular Englishmen. It is the effect of an uninterrupted series of Olympic victories upon the perplexed and defeated youth of Europe, or the disgraceful idea which prevailed in Shanghai before Judge Wilfley cleaned a reproach, which had



HOW WE HAVE GROWN

THE SHADED PORTION SHOWS THE AREA OF OUR OVERSEAS POSSESSIONS. THE HEAVY BLACK LINE DRAWN AROUND THEM INCLUDES THE TOTAL AREA OF THE UNITED STATES UP TO 1817

called itself American for immunity, out of the Chinese coast ports.

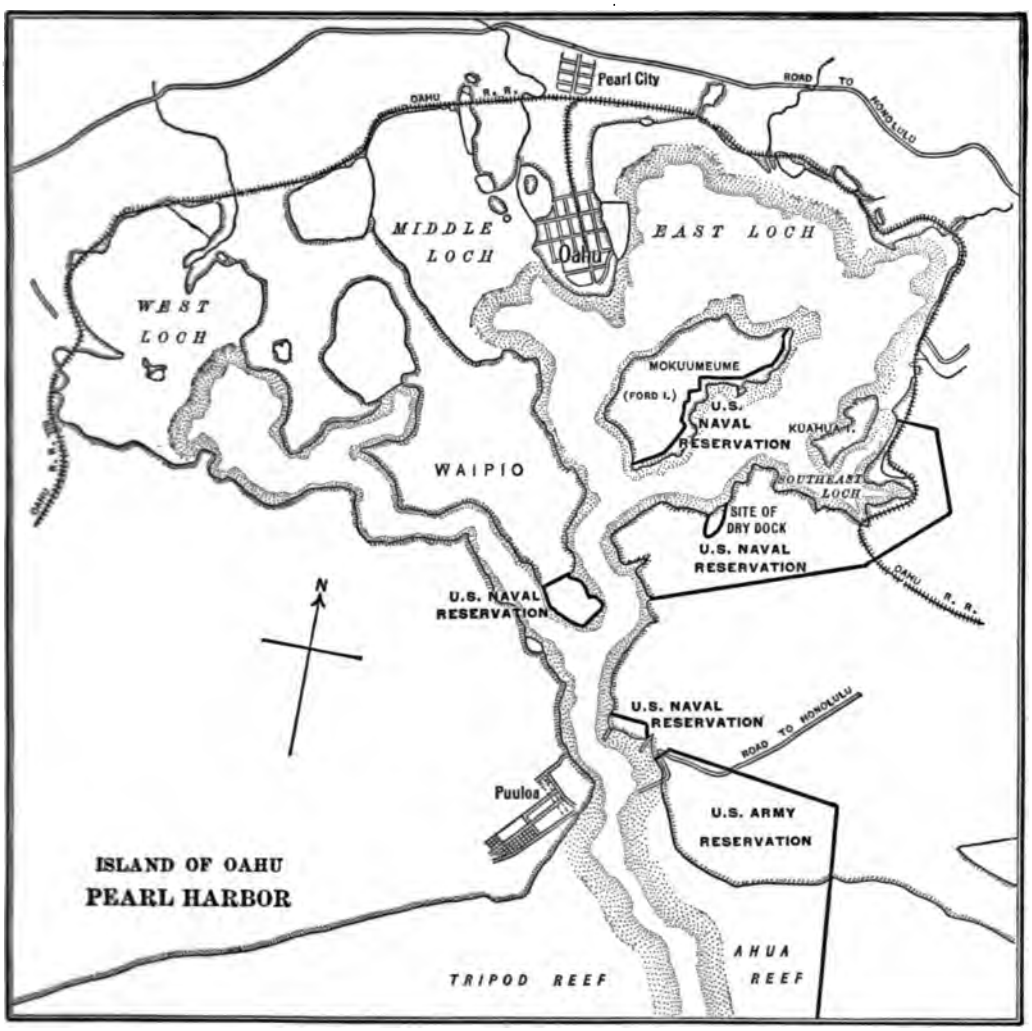
These are some of the varied readings abroad. At home, though we retain a strong grip on the essentials, a similarly wide vagueness prevails as to the details of the definition. For example, how many citizens of the United States know that they own territory overseas, counting Alaska as non-contiguous, that is almost equal in area to the entire extent of what was the United States in 1817, or that, in varying degrees, they control the destinies of nine millions of "foreigners" or "colonists" living in these dominions, a population almost as numerous as that of Mexico, greater than that of all Scandinavia, and about twice as large as the population of Chile.

All sorts and conditions of men compose this American population, no more varied as individuals than the mixed races which migrate through our ports into eventual citizenship and a higher cost of living, but more varied as separate communities, retaining under American rule on their own soil their distinguishing characteristics. In the Philippine archipelago alone more than thirty different tribes are wards of this Government. In Porto Rico, here and there among Negro and Carib types and their inveterate combinations, you will find pure Castilians, courtly survivals of the Spanish time. American Esquimaux inhabit northern Alaska. Smooth-skinned Samoans are our stevedores in their native islands. On Guam the few remaining Chamorros left in the Pacific work on the Government's roads, and gentle Caroline Islanders, who look like tired Navajo Indians, farm and fish under the protection of the naval station. It is a great catholicity of race and religion, of language and customs, sprinkled over all the zones of climate.

The dominions of the United States, thus variously peopled, extend much more widely over the world than most of us suppose. Not so widely as the British Empire, for the sun does set upon the American flag, though only during the hours between nightfall on Balabac and the coming of the dawn to Culebra Island. Starting

SOME COMPARISONS OF POPULATIONS

WITHIN THE LIFETIME OF MEN NOW LIVING THE TOTAL POPULATION OF THE UNITED STATES WAS ONLY THREE MILLION GREATER THAN THE PRESENT POPULATION OF OUR OVERSEAS DOMINIONS



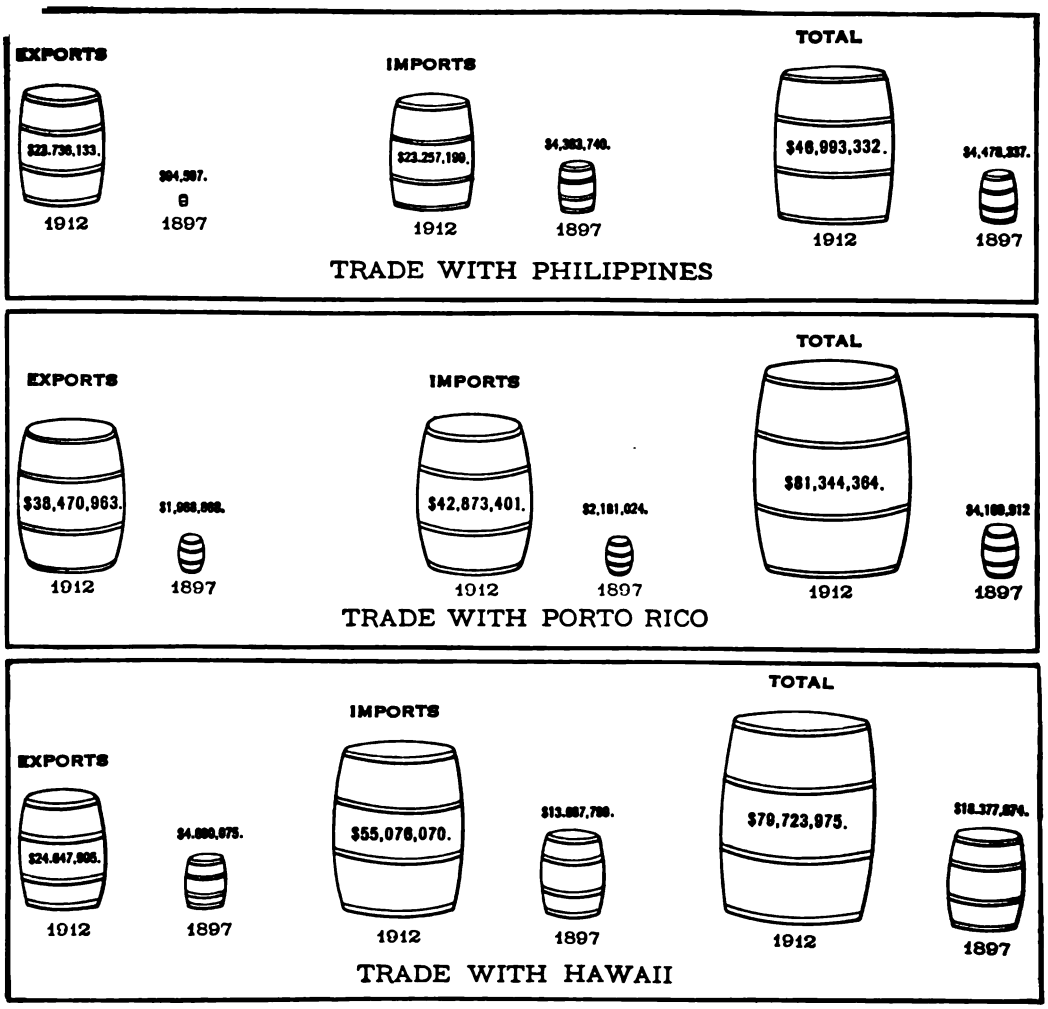
OUR STRONGEST NAVAL POSITION IN THE PACIFIC OCEAN

PEARL HARBOR, WHICH IS NOW BEING TRANSFORMED INTO AN IMPREGNABLE FORTRESS AND INTO A SECURE HAVEN TO WHICH AN AMERICAN FLEET COULD RETIRE FOR REPAIRS AND FRESH SUPPLIES

from the nearest American territory, our newest destroyers could run in an hour into the three-mile limit of Russian or Japanese waters. On the northernmost rock of the Batan Islands, reaching out from Luzon, you may on a clear day see the peaks of Formosa rising misty-purple out of the China Sea, and from southernmost Tawi-Tawi you may almost jump across to Borneo. At Ponce, on the south coast of our largest Caribbean island, the *Mauretania* on one of her good days could run in twenty-four hours into either British, French, Dutch, Danish, Cuban, Venezuelan, Colombian, Santo Domingan, or Haitian harbors.

Going down to Porto Rico out of New York is a fair sea voyage. You leave the dock in Brooklyn at noon on Saturday and pass in under the guns of the Morro at San Juan at daybreak on Thursday morning. But it would take you just as long on the same steamer to get from Cape Bojeador, at the northern extremity of Luzon, in the Philippines, down to the port of Bongao, simmering in the heat at the southern end of Sulu, and you would be coasting American territory all the time.

Take that one island of Luzon, the largest of the three thousand. There is almost as much room in it as in Pennsylvania, or in Cuba, where the same area is so elongated



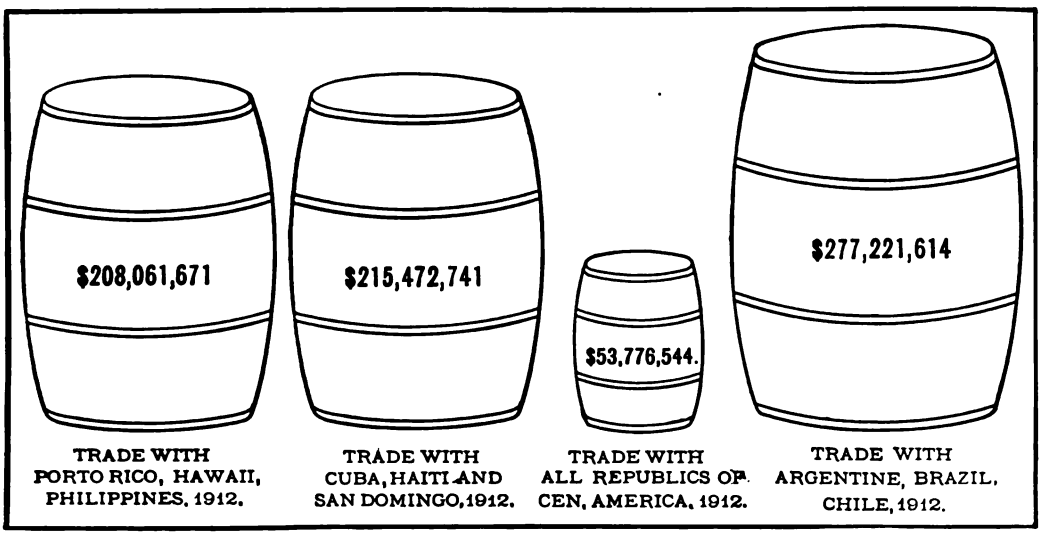
THE MATERIAL RESULTS OF AMERICA'S CONTROL OF ITS POSSESSIONS

I. THE EXTRAORDINARY GROWTH OF OUR TRADE WITH EACH OF OUR IMPORTANT INSULAR POSSESSIONS DURING THE SIXTEEN YEARS OF AMERICAN OCCUPATION

that it takes one of Sir William Van Horne's 35-miles-an-hour express trains twenty-two hours to run from Havana to Santiago. Mindanao, where the Mohammedan Moros live, is almost as large as Luzon. On the map, dotted around over the great white expanse of the Pacific Ocean, our island possessions look small and at first sight insignificant. In reality they are not particularly small, and they are anything but insignificant. Adding them all together — the Philippines, Guam, Tutuila, the Hawaiian Islands, and the Aleutians — they contain ten thousand square miles more territory than the British Isles and, leaving out distant Formosa, Southern Sakhalin, and the peninsula of Korea — regions won from Russia — as much land as Japan. As for their significance, a glance at the strategic chart on page 22 of this issue will show that the possession of five such points as Pearl Harbor, Guam, Tutuila, Corregidor, and Unalaska, ours to have and to hold, means the potential control of the Pacific. We have them now but we do not hold them yet.

The total area of our Pacific islands and other non-contiguous territory — Alaska, the Panama Zone, and Porto Rico — exceeds that of France, Spain, Italy, and Germany put together.

Yet if that comparison makes us feel too



THE MATERIAL RESULTS OF AMERICA'S CONTROL OF ITS POSSESSIONS

II. THE VALUE OF OUR COMBINED TRADE WITH INSULAR POSSESSIONS COMPARED WITH OUR TRADE WITH THE THREE GREAT NATIONS OF SOUTH AMERICA AND THE NEIGHBORING LATIN REPUBLICS. COMBINING INSULAR POSSESSIONS WITH CUBA, HAITI, AND SANTO DOMINGO, WE HAVE A TRADE, ALMOST ENTIRELY FOSTERED BY THE UNITED STATES, GREATER THAN OUR COMMERCE WITH ALL SOUTH AMERICA

imperial, a chastening contrast is provided by the ratio between the colonial territories of three of those countries and our own outside possessions. Leaving the British Empire out of consideration, France's colonial area, for example, exceeds our overseas dominions more than five times, German Africa is 200,000 square miles larger than all our non-contiguous territory; Italy's colonies are larger, and even the Dutch and Portuguese possessions exceed ours in area. Spain, on the other hand, has now been reduced to a beggarly 255 thousand square miles of her once gigantic American empire — but that is partly our fault.

In the government of these American lands that are scattered so widely outside our continental borders, a curious example is found of the distribution of administrative powers. Alaska and Hawaii, being territories, are under the jurisdiction of the Department of the Interior, as formerly Porto Rico was when it appeared to be the intention of the Federal Government to form another territory out of that island. Now, however, the affairs of Porto Rico and the Philippine Islands are administered by the Bureau of Insular Affairs of the War Department. The chief importance of Guam and Tutuila at present is as naval stations and as such they are under the control of the Navy Department, which maintains naval officers on tours of duty as governors of these islands. The Canal Zone is administered nominally by a commission, but in working reality it is an efficient and benevolent despotism under the chief engineer, Colonel Goethals.

The ideas of "colony" and of "empire" both being abhorrent to our republican institutions, the average citizen will presumably warm less to territorial bulk and census figures, whether shown in bleak statistics or in more graphic charts and diagrams, than to the desirability of our outlying territory and what its possession means to this country in the solid material facts of profit and loss. Beyond that, the person who feels a responsible interest in new phases of our national life which are not material will want to know how well the trust is being administered, whether for their sakes as well as our own we ought to hold all these dependencies indefinitely, and what holding them at present involves.

From a military standpoint General Wood and Secretary Garrison answer this inquiry; Secretary Daniels and one of the foremost authorities in the active service

answer it from a naval point of view. Park Commissioner Cabot Ward, of New York City, who was for six years in the Insular Government's service, brings his experience there and in other countries of Latin America to bear on a frank Porto Rican balance sheet, and Mrs. Harriet Chalmers Adams, who has just returned from an extended trip on horseback and by boat throughout Philippine America, gives her impressions of how West is meeting East in the Islands.

Dr. William Bayard Hale, with his first-hand knowledge of the beginnings of the Huerta régime in Mexico City and of the character of the rebel chiefs in the North, writes in his vigorous and plain-spoken way of Mexican affairs and of our relations to Central America and the Caribbean. (Dr. Hale accompanied the Knox Mission to the Caribbean.) He also explains the full significance of the President's new interpretation of the Monroe Doctrine which is now accepted all over the world.

Our new territories have been acquired very cheaply in terms of purchase money. Alaska cost a little more than seven million dollars and the Panama strip ten million dollars, the former less than, the latter about the same as, a dreadnaught of the class of the *Texas* in full commission. After taking the Philippines, Porto Rico, and Guam from Spain by right of conquest, the United States paid Spain $20,100,000 by treaty agreement; but this sum was all charged up on the Philippine account because Manila had not actually surrendered until after the protocol of peace had been signed. No money payments whatever were made on the acquisition of our other dependencies. Hawaii was annexed by joint resolution of Congress in July, 1898; Guam and Porto Rico were ceded by the terms of the Treaty of Paris in December, 1898; and Tutuila, with its five attendant Samoan Islands, became our property by the tripartite agreement with Great Britain and Germany in 1899. The net total cost in cash, therefore, was $37,100,000, an amount just about equal to the money that China borrowed to build the railroad from Canton to Hankow.

This modest total is, however, misleading when one considers the enormous expense to the United States of the Spanish War and of the subsequent Philippine insurrection. But in balancing the national books it would, nevertheless, be an error to charge all the expense of those wars as the price paid for the dependencies which we acquired in 1898. By the cost of the Spanish War, which was undertaken as a war of liberation and not of conquest, the independence of Cuba was bought as well as the regeneration of Porto Rico and the Spanish islands in the Pacific.

When it comes to the cost of maintenance the facts are as surprising as the initial cost. We cannot put Alaska or Hawaii on the expense account any more than the territories of Arizona and New Mexico could have properly appeared there three years ago. Porto Rico, with the exception of the upkeep of the Federal Court and the lighthouse service, costs the people of the United States not one cent. Its entire annual budget and development projects — one thousand miles of new macadam roads, irrigation works, public improvements in all the municipalities, etc. — have been and are guaranteed and paid for out of the insular revenues. Similarly, the Philippines pay for themselves as a civil government, though some political economists charge them with the maintenance of the troops stationed there, an expense which is, of course, borne by the Federal Government through the War Department. The maintenance of the present small naval stations at Guam and Tutuila is a trifling matter, although the proposed fortification and subsequent upkeep of these places would involve a very large outlay. As for the Isthmian Zone and its great waterway, that is a subject apart, but it is safe to say that no one cares, now as the final day of that great achievement approaches, just when tolls on shipping through the Canal shall repay its cost.

Turning finally from the necessarily indefinite materials which make up economically the initial cost and maintenance of our newer possessions, the exact facts of trade statistics swing the balance very heavily in favor of Greater America both as beneficiary and as benefactor. If it is true that the United States "blundered into colonization," it has, in a material sense at least, already proved emphatic-

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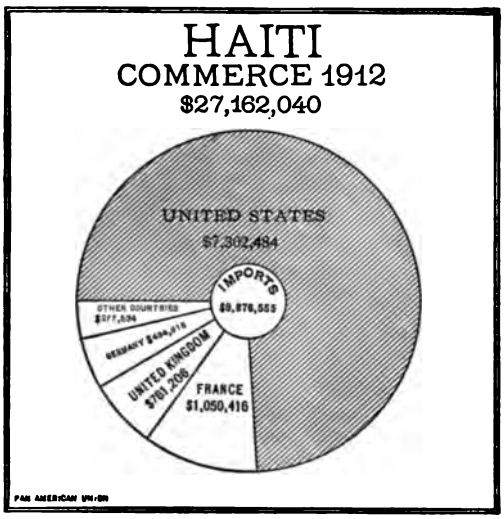
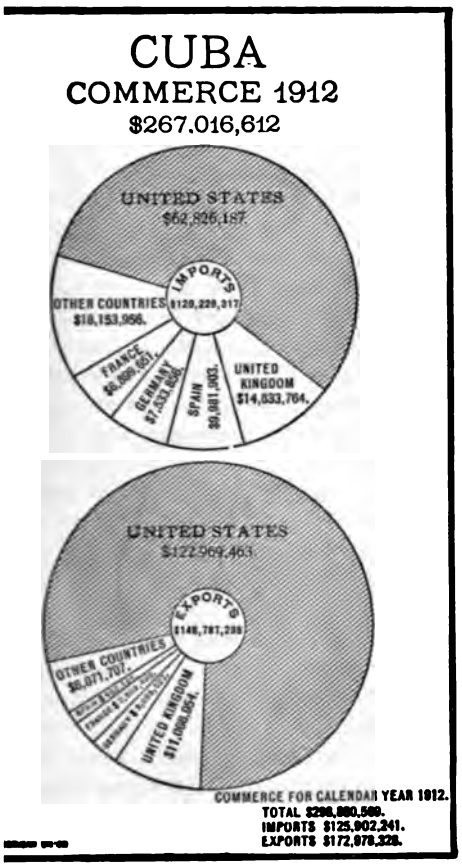
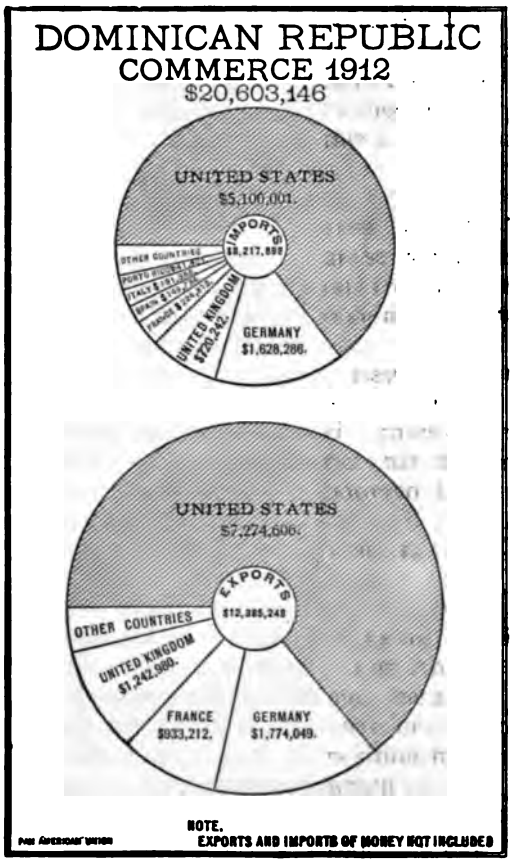


teen years ago, and the entire trade of this one small island exceeded in that same year the value of all our business with either Russia, the Argentine Republic, or China.

In a similar way the charts show the enormous preponderance of trade with the United States of those islands in the Caribbean which have materially profited by the intervention or protection of this country. And if to our commerce with





OUR COMMERCE IN THE CARIBBEAN

THESE THREE CHARTS ILLUSTRATE GRAPHICALLY THE GREAT PREPONDERENCE OF TRADE WITH THE ED STATES IN THESE SEMI-PROTECTED ISLANDS. THEIR MATERIAL PROSPERITY, THOUGH LESS DIRECTLY THAT OF PORTO RICO, IS DUE TO THIS COUNTRY

our insular possessions we add the equal bulk of trade with these three independent republics of Cuba, Santo Domingo, and Haiti for 1912, we find that the grand total foots up to $477,310,956, a sum which exceeds our entire trade with all South America.

All these facts and figures are impressive enough. They form a fair index of our material success. But they do not tell the story of America Overseas. The same commercial genius which has transformed the home land has brought increased prosperity to our distant lands which once were foreign soil, but England has made the Nile Valley a garden, and the coasts of Algeria and Tunis advertise the order and productivity due to French colonial efficiency. Facts and figures, roads and docks, irrigation and sanitation, schools and hospitals — all these the others, in greater or less degree, have also. But we have something more than they ever had. America Overseas means something new in the world.

A COMPARISON OF TYPES

It would be very difficult to hit upon any one figure sufficiently typical to stand for the American régime wherever encountered away from home, the way, for example, Thomas Atkins in his various incarnations represents His Britannic Majesty's dominions. He is unmistakable, a walking trade-mark. Wherever you go ashore on British territory, on the melting summer asphalt of Hongkong, in Kim- and Kipling-haunted cities of India, or under the shadow of the Rock at Gibraltar, there you will find him forever in the same mood, hammering the pavement smartly with his heavy boots, upholstered in a variety of ways according to regiment or climate, but always with the same expression imprinted by tradition on the face of him, bearing the Empire stiffly on his square shoulders.

Just as unmistakable as the tailored sufficiency of Thomas, or the vivacity of Jean Crapaud, with his gestures and his ballooning trousers, is the urbanity of Spain, whether you meet it in Seville or in Spanish cities of the new world. Along the streets of Dalny (Tairen), which fat old Alexieff planned with wine and women for Russian droshkies, rickshaw wheels are singing the Mikado's ambitious tunes, and the sleepy Korean capital of Seoul is unhappily awake with the clicking of Japanese "getas" and the continual soup-eating sounds of "Ha! so deska." At Tsing-tao, in German Shantung, the Kaiser's mailed fist hits you between the eyes with unmistakable Teutonic precision.

Of American rule there are no such concrete signs. And yet you could not be ashore five minutes in San Juan, in Honolulu, in Manila, or Colon, without knowing for certain that you were not in the city of any European power. The impression is made up of many ingredients — of joy, and jauntiness, and jaw. Some of the ingredients are not particularly creditable. You will find little of the precision and discipline of German and British communities. Instead of that, a swing and apparent carelessness which is very American, from the familiar salute of the marine off duty to the lack of formality on some official occasions. When it comes to functions we are simply not in it. But on the other hand the carelessness is more apparent than real; there is a lot of firm jaw with all the easy jauntiness and intolerance of form. Above all the rest of the evident mistakes and apparent successes — and if there is one characteristic touch about the great American experiment it is this — the whole thing seems to be going on in an entirely different atmosphere from other alien-ruled communities. Not the air of success, for similar problems seem often, under other principles, to be succeeding better than our own, but an air of lift, of endeavoring, of hope; no mere quiet acceptance of former limitations, no mere reliance upon rules and ordinances and precedents. This may be an intangible element in American rule but it is the most vital thing about it. Underneath all the imperfect achievement goes forward the true intent. If this Nation is to accomplish great things in the betterment of mankind it will not be by holding aloof from alien peoples nor by reliance upon acts and ordinances imposed upon them, but by the working out of the spirit of the American people and their institutions in contact with other races and civili-

zations. America Overseas means that we are not content to sit at home and cherish our liberty. The main thing for European nations is to preserve their codes and borders intact and to extend the latter whenever and wherever necessary or possible. With such a standard there can be no quarrel since it is often founded upon the conditions of survival. What we in all seriousness call altruism our European friends generally allude to with a smile or sneer of disbelief. Europe has never thought, and does not now think, that way; cannot understand good faith in such a profession. But it is this very altruism which informs the mistakes as well as the successes of a "blundering colonization," not colonization so much as the effort to bring life and opportunity more abundantly. The Nation is dedicated to the Christian principle of being its brother's keeper, a militant destiny of peace when possible, but, whether or not by peaceful means, of ultimate justice.

SNAPSHOTS OF PHILIPPINE AMERICA

CHARACTERISTIC PICTURES OF THE ISLANDS, THAT ILLUSTRATE THE PROGRESS THEY HAVE MADE UNDER THE RULE OF THE UNITED STATES — GOOD ROADS, GOOD SCHOOLS, SANITATION, AND ORDERLY GOVERNMENT IN TERMS OF THE DAILY LIFE OF THE PEOPLE

BY

HARRIET CHALMERS ADAMS, F. R. G. S.

BEFORE going to the Philippines, I visited every other land on earth which had been Spain's. From California to Tierra del Fuego, from Porto Rico to Peru, from the Canaries to the Balearic Isles, I followed the quest. This strange Asiatic archipelago, moored to the China Sea, held so long in oblivion, swept now by a mighty tide of Western ideals, was the last link in my Castilian chain.

We were caught in the tail end of a typhoon on our way down from Japan and sailed up Manila Bay at nightfall, too late to go ashore. As the *Mancburia* cast anchor off the breakwater we all leaned over the rail, allured by the city's gleaming lights. Manila meant home to some; others tried to picture it. A man from Vermont, who had fought against Aguinaldo, had brought his wife over "to see where John got shot." Another old-timer had helped clean up the Walled City and build the first good roads. The tall girl from St. Louis was coming back after a holiday to teach basket weaving to the little Filipinos.

"This is the finest city in the Orient," said the hemp buyer, who lived in Manila. "Beats Hongkong and Singapore! Why, when I first knew the place, in the early 'eighties, it was nothing but a death trap. Now it's a health resort!"

Manila is the most attractive city in the Far East and perhaps the most charming under the American flag. It is sparkling and friendly. We have burnished and modernized it, above all we have made it wholesome. But it was beautiful when we took it. All that is vital and American stands out against a fascinating Spanish background; and all that is Spanish and picturesque is colored by a more ancient history. We have been in the Philippines sixteen years; the Spaniards were there three hundred and thirty-three; the Malays came long years before the Wise Men sighted the Star of Bethlehem.

Here are three pictures. The first is in red, white, and blue. We are in the lobby of the Manila Hotel at the relaxing hour of five-thirty in the afternoon. Men and women are sipping "long lemonades" while the orchestra plays an Argentine

"tango." Through the chatter and laughter, scraps of conversation reach us: "Yes, we're going up to Baguio on Saturday. Arthur has been working too hard and says he needs the mountain. . . ." ". . . .leaving for good in April. I hate to go — just love it at McKinley. . . ." ". . . .Regular corker at Polo. Come over to the Army and Navy and meet him. . . ." "We motored way out to Antimonan. Fine road all the way. You can stop overnight at Los Baños and try the. . . ."

Now leave colonial America and come into quaint Walled Manila. Past time-worn bastions and sentry towers we enter under a carved stone arch. This is a second Lima or Santo Domingo — with its narrow streets, overhanging balconies, and massive, bolted doors. That hoary gray church is like so many in Latin America, which to-day is more Spanish, in many ways, than Spain itself. A black-robed priest glides past. A mestizo's voice drifts through the window in the sweet tongue of old Castile. We are back in the days of Salcedo and Anda, whose citadel this was.

The third scene is in Tondo, the native section of Manila, which is little changed since Spanish ships first entered the Bay. That hut on stilts, built of woven bamboo and nipa palm, tied together with vines, is like all the other Malay homes from the Philippines to Sumatra. The woman at the window, with the wealth of raven hair and the flimsy blouse of *jussi*, speaks Tagalog instead of Spanish or English, for she belongs to the great majority, the uneducated Filipinos. There are pigs and a carabao under the house, and a naked baby is playing in the mud.

During my first week in the Islands, I could see only the heterogeneous strata of Manila life, but as novel sights became familiar, the layers somehow began to blend. I noticed that the Americans are adopting a few Oriental customs; that the upper class Filipinos speak English and live much as we do; that the masses already bear the imprint of our rule. The uneducated *tao*, at work in the rice field, still cares most on earth for the cockpit, his heritage from Spain; but he wants his little boy to go to the concrete schoolhouse and learn near-English and baseball. His wife still "beats clothes in the stream where the carabao dream" and encourages the baby to puff at a big cigar, but her daughter belongs to a basketball team and says she wants to become a nurse. Our work is well begun.

Tourists who visit the Philippines see Manila, Cavite, Fort William McKinley, the Great Lake, and the Falls of Pagsanjan; they motor to Baguio, our Simla in the hills, over our $9,000,000 highway. I saw all these and learned much of American accomplishment and endeavor. But on the trail I learned far more, for then I got nearer the people.

We traveled up into northern Luzon in the rainy season. Our ponies got footsore and we had to walk. There were landslides and swollen streams. We were drenched and baked in turns and slept some nights in the open. But it was a glorious journey and we reached the Promised Land.

It loomed up in the shape of a constabulary post, 'way off in the tropical wilderness where the Ifugaos live. There are 120,000 savages in this tribe and they represent the first Malay immigrants to the Islands, from the hills of India, perhaps. They are primitive pagans, head-hunters not long ago, but a brave, industrious people. As agriculturists they take high rank, for their terraces surpass those of the Incas of Peru, rising, like giant steps, from the twilight of the cañon floor to the mist on the mountain top.

Soon after we arrived, there was a native feast in our honor and the people danced and chanted all night as they do in the French Guiana bush. Only here a young American walked among them — a fine, unselfish man who is giving his best years to this part of our service. He is the Big Chief among these people — father, friend, teacher, missionary, priest, sheriff, and governor in one. The Big Chief disapproves of head-hunting. He speaks the native language and adjusts disputes over stray pigs. I found men like him at work from northernmost Luzon to the little island of Bongao, far down in the Sulu Sea.

IN "INFINITE VARIETY" OF CIVILIZATION IN THE PHILIPPINES

EACH OF THESE WOMEN IS A TYPE AND EACH IS DRESSED IN THE FASHION OF HER CLASS. THE OBVIOUS DIFFERENCE IN THEIR LEVELS OF INTELLIGENCE SUGGESTS THE DIVERSITY OF THE PROBLEM THAT THE UNITED STATES HAS UNDERTAKEN TO SOLVE IN THE ISLANDS

One day I was sitting on the veranda of Governor Tomlinson's house, marveling at the view. The Peruvian forest country is the only tropical land I know that is more beautiful than Ifugao. Up the hill came a savage dressed in a gee-string and a spear. I learned later that he had trudged for days over the mountains to consult the Big Chief about a stolen hen. A few years ago he would have chopped off a man's head as payment for the fowl. Bowing gravely, he placed his gifts before us, four eggs only four days old. Just as he was about to give them to the Governor, he changed his mind and handed them to me. A white woman is something of a curiosity in Ifugao, an altogether useless creature who would fall off the steep mountain side if she attempted to climb it as the native women do. But nevertheless here was a woman, and a brave must be gallant! I like savages and make friends with them. It was not long before I was sitting beside the big chocolate-colored chief, telling him, in sign language, that if he would show me the contents of his kit, I would show him the things in mine. Like all the men of his tribe, he carried a small cloth bag of native weave, slung pannier-wise through a brass ring at the belt. We took the articles out, one by one, matching them as boys do marbles.

He had a long slim stick with which he cleans his ears; I had a bit of orange wood with which I clean my nails. He had a carved wooden spoon, used in eating rice; as I had no spoon, he thinks I eat with my fingers. He had a brass pipe and a betel-nut box; I had a mirror and a powder-puff. The chief had many other things, all well

AN AMERICAN HIGH SCHOOL FOR THE NATIVES

THE RISE FROM NAKEDNESS TO EUROPEAN CLOTHES IS AS SIGNIFICANT OF THE CIVILIZING FORCE OF THE SCHOOLS AS IS THE RISE FROM ILLITERACY TO USEFUL KNOWLEDGE

made and useful, all indigenous and known to his people since time immemorial. On the whole his trail equipment was better than mine and I had to acknowledge it.

Instead of thrusting clothes and rum and the other forerunners of civilization on these people, we have begun at the other end with the big things that count. Our work here is less difficult than among more enlightened tribes where there is always so much to unlearn.

TINGUIAN GIRLS

The most interesting person in Ifugao is Ling-ngayo, and she is the prettiest girl in all Malay-land. My little sister Ling-ngayo winds a strip of cloth around her body from waist to knee and can walk much better than I, with the present fashion in skirts. She has dignity and poise and stands up and looks you in the eye. As soon as she felt she could trust me, her reserve vanished and she was as merry as any girl at home. We climbed arm-in-arm up the terraces to the band-box houses on the heights where the children screamed at the sight of a stranger, and the women, working at crude looms, hid their faces. But my guide reassured them. I could not understand a word she said; perhaps she told them I brought no evil to the rice harvest. In the end the children, at least, quite believed in me and devoured the last of my chocolate, tin-foil and all.

The night before we left the cañon, the

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A NATIVE TEACHER AND A SAVAGE PUPIL

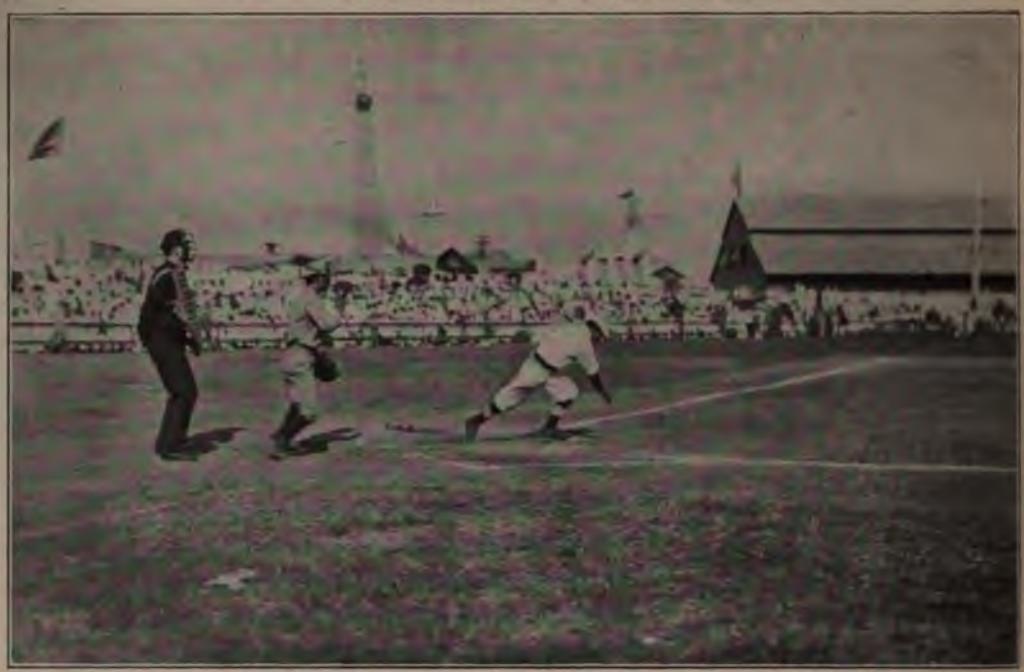
AN EXAMPLE OF THE DIFFUSION OF WESTERN INFLUENCE THROUGH THE PHILIPPINES. THE TEACHER HAS BEEN CAPTURED BY IT; THE SAVAGE IS BEING LED UNDER IT BY WAY OF ATHLETIC SPORTS

Christian Filipino at the trading store, who speaks Ifugao and English, bowed out a caller with a mysterious slip of paper. Next morning, as we started up the trail, my little lady came to say "Good-by" and looked at me wistfully as she gave me a package wrapped in a banana leaf, pointing to the summit of the hill. When I opened it I found a little skirt, like the one she wears, and a brass charm from her neck, a valued heirloom. Then there was a letter. I have it yet. It reads: "My name is Ling-ngayo. I live in the Banaue Valley. Do not forget me."

A good step up in evolution are the girls of Cervantes. Theirs is a sleepy little Christian Filipino village in Lepanto Province, more important in Spanish days than now. We rode into town at noon, having been marooned all night between rivers. I had slept in rain-soaked garments and was not feeling very fresh, but at about three o'clock in the afternoon our American host announced callers.

"It's the *Presidente* and the young ladies of the town," he said, "come to pay their respects to the Americans." At once we made a hurried effort to remove travel stains and went to face the music. There *was* music, the town band, and quite a crowd had gathered. There was dancing and conversation. "How were we impressed with Cervantes?" "Had we seen

A SUBANO MOTHER AND CHILD



AN ALL-FILIPINO BASEBALL GAME

AMERICANS ARE REPLACING COCK-FIGHTING WITH BASEBALL AND OTHER OUTDOOR GAMES

A BUKIDNON MAN

the new schoolhouse?" Then there was more dancing and the *Presidente* and I led the *rigodón*.

How graceful and agile these little Filipinas, despite their flowing skirts and clumsy slippers, worn on stockingless feet! How modest, animated, and sweet of manner! They ranged from fifteen to twenty. All spoke Spanish and a few braved English. One of these, intelligent and earnest, stands out as a promise of new womanhood in the Philippines. She plans to enter the Training School for Nurses in Manila. Ambition in this isolated village means more than in the capital, where the uplift movement is centred.

The Filipina's unhampered position is unique among the women of the Orient. The bound feet of China, the ringed noses of India, the veiled faces of Persia, alike are unknown to her. Spain brought her faith and song, but did not bar her windows as in the New World.

Throughout the Islands the young women, more than the young men, realize the needs of the people. They are interested in domestic science and follow practical lines generally. Many of the boys

REN PRACTISING CALISTHENICS
USIC OF THE CONSTABULARY BAND, AT
ENING OF THE "OLYMPIAD" IN MANILA

e Spanish disdain for agriculture
ort of manual labor. They want
law or become journalists. The
r the dance one of the men made
call to ask if we would kindly tell
t Wilson that they have produced
Cervantes.

ailed through many provinces and
t last, to the pines of Benguet.
book I ever read on the Philip-
rried a picture of a band of head-
armed with spears, creeping up
ntain side. At twilight, one day
et, I looked over the trail and saw
There were forty warriors — alert,
, with spears erect. The head-
nded us a paper which explained
y were Ifugaos on the way to Bag-
ork on the new railroad. And the
which I speak was published only
s ago!

means "storm" in the native
and our pine-clad summer capital
d up to its name. It has been a
f political typhoons, and may or
live on. We built it because we
that Americans could *not work*
ound in the lowlands, and because

A YOUNG MORO

native teacher's English has grown a bit rusty. Out of classes the children fall back on Visayan or Tagâlog, or whatever the tongue happens to be, as their elders understand nothing else, save Spanish here and there. It is a pity that American teachers could not have stayed on, in increasing numbers, for they teach more than English, and the youth of the Philippines is eager to learn.

From Cebu we sailed to Moro Land, crossing Mindanao with an armed escort. The packers who guided us from Lake Lanao to the Celebes Sea were formerly Arizonan cowboys. They fairly bulged with knives and pistols and regaled us in the jungle with bloodthirsty tales of the Moros, but we did not see any bad Moros on the trail. The greater portion of Mindanao is now fairly safe for travelers. The Moro chiefs are our friends. One old chief on the Cotabato River told me, in Spanish, that *his* people do not want independence when it comes to the Christian

THE CLINICAL THEATRE OF THE PHILIPPINE GENERAL HOSPITAL

THE MEMBERS OF THE PHILIPPINE MEDICAL ASSOCIATION WATCHING AN OPERATION. THE REMARKABLE SANITARY CAMPAIGN THAT HAS ERADICATED MOST INFECTIOUS DISEASES FROM THE ISLANDS HAS BEEN INSPIRED AND DIRECTED BY THE OFFICERS OF THIS MODEL INSTITUTION

THE FREE DISPENSARY OF THE GENERAL HOSPITAL

Filipinos. "We want to remain under your flag," he said, "for we know you mean well by us."

I did not become acquainted with Mohammedan women of the upper class. Datu Piang, who is a partner in the lumber business with an American in Cotabato and manufactures beaten brass-ware on the side, has many wives, and I wanted to visit his harem. When I said so, the old chief shook his head. He wore a soiled white cloth tied turban fashion over his long coarse hair, and has the Mongolian slant to the eyes. He is very wealthy, but this was not a gala occasion, so his gorgeous garments were replaced by a tattered cotton robe. I stood beneath the balcony of the women's quarter and three girls, with teeth blackened from betel-chewing, and upper lips and finger nails stained a brilliant red, leaned over the rail and smiled at me. Just then some one ordered them in. Women of the humble class are not guarded in this fashion, and work beside their husbands.

Our work with the children is begun. Yesterday's mail brought embroidered linen from the salesroom of an Industrial School for Moro girls. I can see the little tots now bending over their work and the fair-haired American woman who has given up so much to teach them. The industrial branch of education in the Islands is of utmost importance.

From Mindanao we cruised the Sulu Sea to Jolo, our present battle-ground, and to the islands beyond which are like stepping stones down to Borneo. The Sulus have been pirates for centuries and, more than any other tribe in the Philippines, have needed firm rule. They have it now under Governor Whitney, the hero of Bagsak. I saw one medal "For Valor" on his breast and the Americans out there say that he has earned a dozen more.

Borneo is altogether too near a neighbor for our welfare. The British North Borneo Company licenses opium "farms", as they are called, and the Sulus do a thriving

A FREE PUBLIC BATHHOUSE, TOILET, AND WASHHOUSE IN MANILA

business smuggling the deadly poppy juice into the Philippines. They store it in the bamboo masts of their fleet vessels and hide when a revenue cutter is sighted. Firearms also come over in this manner. The opium plant was being enlarged when we were in Sandakan, the nearest Bornean port.

Unlike that of the Spanish and the British, our rule in these waters has not been influenced by religious zeal or commercial greed. We have tried only to help all the peoples of the archipelago to help themselves.

At a remote post on the Sulu Sea I met a young constabulary officer whose people live in Washington, D. C. I asked if he *would care to have me call on his mother* on my return. "I have been out here five years and Mother hasn't met any one who has seen me," he said, so about the first thing I did on reaching home was to telephone to her.

Next day she came to see me, and I felt what it had meant to her to send him so far away for so long a time.

"But you must see what it has meant to him to be there," I said, "to him and to his country. If he had stayed here he could never have grown into so fine a man. The life out there teaches strength, courage, and unselfishness. He, and men and women like him, illustrate America's aim in the Philippines, and whether we keep the Islands or free them, the work has not been in vain."

SCHOOL GARDENING IN PORTO RICO

THE PORTO RICAN BALANCE SHEET

WHY AN ENORMOUS GAIN IN MATERIAL PROSPERITY HAS NOT BROUGHT POLITICAL UNITY AND CONTENTMENT — NEW ADMINISTRATIVE METHODS AND THEIR RESULTS — THE NEED FOR BETTER PERSONAL RELATIONS

BY

CABOT WARD

FORMERLY PRESIDENT OF THE PORTO RICAN SENATE

THE day has passed when the civilization of a single nation, however strong, can stand alone, cloistered in deliberate exclusion. But in this general breakdown of preconception there still remains, strangely enough, a notable exception. Between ourselves and our sister republics to the south, there exists a barrier raised by mutual misunderstanding of the civilization, aims, and ideals of one another. Each stands aloof and uncomprehending, often so near in point of geography, yet shrouded from one another's gaze by a veil of prejudice and mutual ignorance.

It is in this respect that the peculiar significance of the little island of Porto Rico — or Puerto Rico, not to rob it of its real name — becomes apparent. Our possessions in the Caribbean and in the Pacific brought us burdens which, to many minds, were anything but a blessing. But those who look beyond the immediate result see in them a peculiar value. They have given us, as it were, a crucible wherein to cast our mutual prejudices, a melting pot where our ideas may fuse with those of our Latin-American neighbors and reappear in a form of sympathy and respect. To understand the aspirations of these neighbors is to convert a latent hostility into a realization that they have something positive to contribute to the advance of civilization — not alone the civilization of their own country but that of the world at large. Porto Rico is the spot where our two civilizations have come to-day into

THE OLD WAY —
FORDING THE RIO GRANDE. ILLUSTRATING THE NEED OF BRIDGES OVER WHICH TO CARRY PRODUCE TO THE NEAREST SHIPPING POINT

closest contact — a contact so violent that it has sometimes been called a clash.

In 1898, when the Americans took possession of the island, they found, to their surprise, that for several months the Porto Ricans had already been ruled under an Act which gave them considerable self-government. Indeed, at the time of our occupation we neither understood nor appreciated the real status of that Latin community nor did we realize the important part it had played in the struggling history of Spanish possessions in the Caribbean. This little island — only 100 miles from east to west, and approximately 40 from north to south, yet with more than a million inhabitants — has been, ever since its discovery and colonization, a fiery leader in all movements for the rights of the colonies. When, at last, Spain granted equal representation to the colonists in her National Assembly, the Cortes, the glory of the victory was freely accorded to the courageous Porto Ricans.

But the zeal of the islanders for independence took a more startling and Quixotic form, for to Porto Rico belongs the glory of having boldly attacked the problem of slavery and of having solved it in a manner at once original and practical. Agitation to abolish slavery began in 1837, and was kept alive by an active propaganda until, in 1873, the Spanish Assembly unanimously voted for the abolition of slavery in that island, authorizing a loan of about six million dollars to indemnify the slave owners, and pledging the income of the island to guarantee the loan. The freedmen were obliged to labor with some landed proprietor for three years, thereby avoiding a sudden economic change. This solution was accepted by the mass of the people — with considerable generosity, it must be admitted, because the majority of those taxed under the arrangement were not slave owners. Thirty-four thousand slaves were given their liberty without a social upheaval or any subsequent outbreak to stain the brilliancy of that unique page in history.

The scope of this article precludes a detailed description of the character of Porto Rican society as we found it, with its cultured classes, educated in the universities of

—AND THE NEW

GE, ON THE BAYAMON-COMERIO ROAD. AN EXAMPLE OF THE BRIDGE-BUILDING AND ROAD IMPROVEMENT THAT HAVE OPENED THE MARKETS TO SMALL LANDHOLDERS

drid. Nor can we tell of the the hill country, among whom ur still fills his medieval pur- nough has been suggested to that Porto Rican civilization mould that was as individual nite.

a background, then, was the American military ad- which continued in force for til, in 1900, Congress, by the nic Act, established American ent as it exists to-day. Mean- orto Rican people welcomed s with every manifestation feeling that their long fight e had at last been won, for heroes of American history whose example had spurred rough their own years of ven the temporary military vas looked upon as a step for- a disagreeable step.

er Act provides for a gover- ed by the President of the , whose powers are practically h those *of the governor of* a territory at home; also for six heads of the administrative departments of the Government who are given ex-officio seats in the local Senate. In this respect the United States followed the parliamentary system of England, a system applied with success in certain British possessions in the Caribbean and neighboring waters. I believe from my experience in Porto Rico that here, also, this policy has been decidedly advantageous during the transition stage. The legislative power is reposed in two houses — the upper house, or "Executive Council," and the lower house, or "House of Delegates." The upper house consists of eleven members, all appointed by the President of the United States. Of these eleven, the Act stipulates that at least five shall be native Porto Ricans, but it does not limit the President to this minimum in his selection of councilors. In practice, however, the six administrative department heads have been Americans, who have constituted a majority vote.

The House of Delegates is an elective body and with a single exception has been composed of Porto Ricans exclusively.

THE WEALTH OF PORTO RICO

THE PRODUCTION OF CANE SUGAR HAS GROWN, UNDER AMERICAN GOVERNMENT, FROM 70,000 TONS IN 1901 TO 320,000 TONS IN 1912

In this place a striking fact may well be emphasized because it demonstrates that the Porto Rican people are not temperamentally antagonistic to the American forms of government. Not only are they enjoying to-day a legal and judicial system similar to

AN AMERICAN COFFEE PLANTATION IN PORTO RICO

THAT IS A MODEL TO THE NATIVE NEIGHBORS BOTH BECAUSE THE LIVING ARRANGEMENTS ARE SANITARY AND BECAUSE THE AGRICULTURAL MANAGEMENT IS SCIENTIFIC AND EFFICIENT

A MODERN SUGAR MILL

THAT IS RAPIDLY DISPLACING ALMOST ALTOGETHER THE PRIMITIVE, OX-POWER MILLS OF THE TYPE THAT IS ILLUSTRATED IN THE PICTURE BELOW

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AN OLD SUGAR MILL

A TYPE THAT FORMERLY WAS COMMON

have become a law.

It would be easy to set forth an unqualified eulogy of the results accomplished in our thirteen years of civil government in Porto Rico. A description of the improvements in political methods, in the health of the inhabitants, in the astonishing growth of the commerce of the island: all these things testify in solid figures to the increased material prosperity which American rule has brought in its train; yet to do so would be to give but a one-sided picture. Our administration in the island has, like most things, known its lights and its shadows.

EVIDENCES OF PROSPERITY AT SAN JUAN, P. R.

WHERE THE PIERS THAT WERE BUILT BY THE INSULAR GOVERNMENT HAVE STIMULATED THE COMMERCE OF THE COUNTRY BY MAKING ITS TRAFFIC CONVENIENT TO OUTSIDE MARKETS

In outlining the political results accomplished during the thirteen years of American administration, I am assuming that our position in that island has not been one of domination, but of gradual preparation of the islanders for a greater measure of self-government. I consider, therefore, that one of the most notable results of our administration, though not a showy one, is the re-organization of the government of sixty-six municipal governments of the island by which the floating indebtedness was entirely wiped out in five years. The municipalities were authorized by law to convert their outstanding obligations into interest-bearing certificates. And the creditors agreed to accept these certificates because the law provided that the Treasurer of Porto Rico should retain every year, from the property taxes collected on behalf of the different municipalities, the necessary sums to pay the certificates as they came due. A modern system of budget rendering and accounting was installed, admirably devised so that opportunities for fraud and misappropriation are reduced to a minimum.

Another effective law allows the municipalities to borrow from the Central Government for the construction of works of permanent utility, such as roads, aqueducts, markets, etc., on the condition that the expenditures be supervised by the upper house of the legislature. In these transactions the good judgment of the American officials in charge of finance has been of recognized value. Both as Auditor and as Secretary of State I had exceptional opportunities for observation, and I do not hesitate to affirm that hardly a state of the Union could show a government more honestly administered than that of Porto Rico during the period that my experience covers.

One of the most original and successful phases of our governmental system in Porto Rico is the wide administrative powers that are given to the Standing

ittees of the Executive Council is composed of Americans and Porto s. The Finance Committee, for le, passes on municipal loans, etc., a constant check and adviser in ng good municipal government.

perhaps the most novel of the func- entrusted to the Executive Council Act which has made it a public commission with full powers to be — not merely to approve or dis- e — rates and conditions of service. tanding Committee of Franchises ublic Utilities, with its staff of ex- and investigators, has enabled ecutive Council to handle effectively estions concerning franchises that risen in connection with the modern system, the urban and interurban lines, and the coastal railroads. nish power for the trolley system of an and for industrial corporations, ll as to light neighboring cities, has been developed a large power at Comerio Falls, on the north side island; and the irrigation project Guayama provides for another power plant for the southern cities.

I have already indicated, the admin- on of the island has been strikingly sful from a material point of view. 900 miles of new roads have been under the American civil govern- the Porto Rican legislators having large annual appropriations, as well eral bond issues, for this purpose. y there is not an important town lage that has not a good road on to carry its produce to the nearest ng point.

growth of the island's commerce has apid since 1900, when free trade with nited States was established. It has from 17½ million dollars to 93 mil- ollars, most of this trade being with nited States.

se figures place this one small is- ahead of the whole Philippine arch- o and eleventh on the list of all n governments or non-contiguous ries having trade with this country. al development, as shown by prop- aluation, increased 88 million dollars seven years preceding 1912.

The sugar industry was effectively built up under the Tariff Act of 1900, which gave Porto Rican sugar a preferential position as against the other Caribbean islands. The tonnage exported last year was 500 per cent. greater than at the date the preferential treatment was put in force; and, since 65 per cent. of the island's revenue comes from the sale of sugar, the industry's importance is clear.

The output of tobacco has multiplied fourteen times since 1900. This industry brought the island nearly eight million dollars last year; 169,765,655 cigars were sent out, to say nothing of 111,683,615 cigars that were withdrawn for home consumption. Last year the tobacco of Porto Rico produced half a billion cigarettes for domestic consumption, and more than 12½ million for the United States.

Porto Rican coffee, recognized in Europe as one of the world's best coffees, has not as yet obtained a foothold in our market, despite the somewhat desultory efforts of the Insular Government to exploit it.

Thus, from an economic standpoint, the development of Porto Rico has been almost unparalleled, if we may except the case of the coffee industry, which actually suffered a set-back through the American occupation of the island.

Going on to less material aspects of our régime, the efforts of the American school commissioners have been ably seconded by the Porto Rican people. School houses have been built wherever such facilities were lacking. Indeed, it may be said that the Porto Rican legislators have been exceedingly generous in all large movements for the public good, such as irrigation, the building of roads, and public instruction, having more than once bonded their people for the execution of these purposes.

The judiciary of Porto Rico has played a distinguished and honorable part which has won the respect alike of the islanders and of the Americans. The only officers from the United States in the judicial system have been the attorney-general and two of the five judges of the Supreme Court. The Chief Justice, as well as the majority of the Supreme Court, have always

en Porto Ricans, and there has never been a whisper against their integrity and ability. Moreover, the district and municipal judges and district attorneys — with hardly an exception — have been Porto Ricans.

A regiment of native Porto Rican soldiers forms a regular part of our Army, and they have been commended by military authorities as one of the best drilled regiments in the service. Their term of service ended, the soldiers return to their respective villages, where the lessons of neatness, order, and discipline have proved a good example to their families and neighbors. Just now, when the question of state constabulary is a vital issue at home, the success of the Porto Rican insular police force is of peculiar interest. Under Governor Winthrop the force was unified so as to cover both country and city districts, with excellent results.

A close comparison between British possessions and Porto Rico as regards commercial development can hardly be made to advantage, as the former have been suffering in late years from commercial depression. But this, at least, can be said without fear of contradiction: in no case has such material help been given to a colony by the mother country as has been afforded Porto Rico by the United States. Rapid development has been immensely aided by the unusual advantage that is given to the island by Congress in the statute which not only allows Porto Rico to collect through its local officers an internal revenue tax, but returns to the insular treasury all the revenue that is obtained from the United States customs offices on the island. Thus, both the internal revenue and customs receipts, which in other parts of the territory of the United States go to the support of the Federal Government, in Porto Rico are returned to be appropriated by the local legislature for the needs of the island.

The wage scale has increased, and the improved condition of the peasant, both as to health and material comfort, may be taken as a sign of the general increase of prosperity under American administration. Furniture and household articles have become universal where once they were almost entirely lacking. Tropical anemia has been reduced greatly, owing to the scientific discovery of an American army officer, Dr. Bailey K. Ashford, who originally discovered the hookworm in Porto Rico. His department not only cured 85,000 people the first year, but has continued the reduction of anemia on the island to a striking degree, and the result of his discoveries has led directly to a general campaign in other Southern countries.

Telephone and telegraph wires, chiefly government-owned, reach the most remote sections of the island. A comprehensive system of irrigation already mentioned above will shortly be completed, planned to make productive the southern side of the island where the rainfall is insufficient.

The coastwise trade laws of this country have been extended to Porto Rico, and the lighthouse service of the island is wholly maintained by the United States. A national forest reserve has been established to protect the main watersheds, and the Federal agricultural station at Mayaguez should revolutionize agricultural methods of the future.

Thus, with increased school facilities, with increased road facilities, with increased trade, and higher wages, all which have brought increased material comfort to the people at large, it may well be asked why it is that Porto Rican leaders, and even the mass of the people, have voiced, as time goes on, an increasing restlessness?

One explanation, and a just one, may lie in the fact that, whereas in days gone by they were Spanish citizens, the United States has not yet seen fit to grant them citizenship. After thirteen years they still enter our Nation as aliens, even as they enter Spain and every other nation on the globe. They are men without a country and feel their situation to be as mortifying as it is unique. It has been argued by one of our most prominent statesmen that the Porto Rican possesses all the privileges of citizenship, and lacks only the name; that his grievance is therefore a mere matter of sentiment. Granting this, such sentiment is the very stuff of which patriotism is fashioned, and the

answer of the Porto Rican is a ready one, to wit: that no man can throb with patriotic loyalty toward a country to which he is an alien.

The Porto Ricans do not demand statehood as a necessary consequence of citizenship. Many would like such an ultimate solution of their problems, and others prefer a special status such as that of Canada. But delay in the granting of citizenship is certainly at the root of much of the bitter feeling toward the United States which exists in the island to-day. In support of their claim they urge that we have already had examples in which the granting of these privileges has resulted in benefit to all. They point to Louisiana, whose people, customs, and laws were thoroughly Latin, and which has been successfully assimilated as a harmonious part of our Nation. A willingness on our part to admit the Porto Rican people to full enjoyment of political rights would do much to break down the unnecessary barrier of racial prejudice that has been artificially maintained for so long between ourselves and our Latin-American neighbors.

Furthermore, there is a universal feeling on the part of the islanders that they have earned the right to a greater measure of self-government. Some among them will grant that a period of comparative tutelage may have been advisable in the past, during the period of necessary adjustment of their country to our political ideals; but they insist that the time has passed when so great a supervision of their affairs by officers sent from the United States is either reasonable or necessary.

I have stated what appears to me the most obvious cause of the restlessness of our insular possession. Yet my own personal opinion is that it is not only a political difference which has tended to set the Porto Rican people in an antagonistic attitude toward Americans. In this connection it is significant that during my five-years' stay on the island there was not a single case where the vote of the upper house of the legislature divided upon purely racial lines. Whether this is still true to-day, I cannot say. But my own experience convinced me that it is not so much a divergence of political principles as a clash of personalities that separates the "Yankee" from his Porto Rican brother. We have, on the one hand, an old civilization with a deep-rooted courtesy, spontaneous alike in the peon and in the university graduate; and on the other, a young nation full of aggressive self-assertion, to whom courtesy means hypocrisy and suavity means weakness. Though it is a truism to repeat that the young must ever look upon old age with impatient contempt, and that it is the special privilege of old age to turn up its nose at the barbarisms of youth — still such a reciprocal attitude between nations does not tend to harmonious relations.

In support of my theory that it is not our principles but our persons that are antagonistic, it is only necessary to point out that the stranger from the United States is popular in those parts of the island where he is known by reputation only; whereas, in those regions where he has penetrated with his schools, his roads, and his other material benefits, precisely in these places is he least beloved.

The situation is not one to call for pessimism. It can be overcome in time, when each side begins to take a receptive attitude toward the other, rather than a purely didactic one. The narrow provincialism of each race will break down as the best thought of the other is popularized in its midst and as representative men from each visit the other with an open mind. A man who is not ready to learn is obviously incapable of teaching, and one who enjoys the opium dream that his little horizon limits the globe is not worthy to represent the best ideals of his country abroad and in general has not been counted worthy to represent them at home.

Thus, if our contact with our little sister of the Caribbean has been at times a somewhat violent one, the optimist may find room for hope that, when the sparks have had time to clear away, this contact may have been, in the end, the means of broadening our national point of view, allowing us to give our Latin neighbors what is best in our civilization, and in return receiving from them the result of their experience — both personal and inherited — in solving the problems of civilization.

OUR MORAL EMPIRE IN AMERICA

PRESIDENT WILSON'S POLICY IN MEXICO AS AN EXAMPLE OF THE "NEW MONROE DOCTRINE" THAT ESTABLISHES OUR SUZERAINTY ONLY AS AN EFFECTIVE SOURCE OF MORAL INSPIRATION OVER THE NATIONS OF CENTRAL AMERICA AND THE WEST INDIES

BY

WILLIAM BAYARD HALE

Dr. Hale desires the editors of the WORLD'S WORK *to make it clear that he does not pretend to know the mind of the Administration on Latin America. He has no connection with the Government, and writes simply as a private student of the affairs which he discusses.*

While making this statement, the WORLD'S WORK *may say that perhaps no one except the President himself is entitled to speak with greater authority upon the problems of Latin America and the relation of our Government toward the Latin-American Republics. Shortly after the February,* 1913, *coup d'état in Mexico City and the assassination of President Madero and Vice-president Suarez, Dr. Hale went to the Mexican capital to investigate those events and the character of the Huerta régime. He remained three months, returning to Washington with a report which, according to common belief, decided President Wilson to refuse recognition of the Huerta Government.*

Later, Dr. Hale visited the revolutionary chiefs in Northern Mexico, and held a series of conferences with General Carranza and his staff; these conferences were followed shortly afterward by the abolition of the embargo on arms and munitions of war, which had placed the revolutionists at a disadvantage.

In addition, Dr. Hale has traveled much in Latin America: two years ago he accompanied the then Secretary of State, Mr. Knox, on his tour of the Caribbean capitals.—THE EDITORS.

THE press and people of America have not yet awakened to the fact that the first year of the Wilson Presidentiad has given the United States a new character among the Powers of the world. It has not yet come home to us — perhaps not come home to the Government itself — with a realizing sense that we have set out upon an enlarged international history.

The first twelvemonth of Mr. Wilson's Administration has seen the chief article of our international policy significantly extended and immeasurably strengthened. Before Mr. Wilson had been in office a full week, he had given the Monroe Doctrine an interpretation the implications of which go far beyond anything voiced by Jefferson, Madison, Monroe, Quincy Adams, Polk, Webster, Grant, or Olney. Before Mr. Wilson had been in office a year, the Powers of other continents had yielded to the principle of our domination in the Western Hemisphere; an acquiescence never before accorded, scarcely expected, and amounting to a transformation of what had before been merely our assumption into a recognized presumption of international practice. As a result, the relationships between the United States and the rest of America, and between the United States and the other great Powers, have substantially altered.

It is not fantastical, therefore, to speak of our moral Empire in America. Of the nature of that Empire, howbeit, of the form into which, in the expanding years upon which we have now entered, it is destined to grow, we should neither misconceive ourselves nor allow a misconception to deceive our neighbors to the south.

Coming into power with a programme of internal reform and progress, Mr. Wil-

son's Administration was from the beginning beset with foreign problems — embarrassed with foreign problems, it seemed, a year ago, natural to say. Under wise management — wise with the wisdom of patience — the foreign problems have proved no embarrassment.

A difference with Japan was adroitly worked up into a "crisis" by opponents of the Administration, acting in conjunction with enemies of the Japanese Government for the time being. It was a task of no great difficulty to allay this, especially since the President and the Department of State happily enjoyed the coöperation of an Ambassador distinguished for brilliant equipment even above his predecessors in the line of talented envoys whom the Mikado's Government has sent to Washington. The attempts to embroil America and Japan collapsed before the sober good sense of two sensible peoples — another demonstration that the Powers which face each other across the Pacific are not to be brought into conflict by the artful wiles of politicians of either nation.

The Mexican difficulty was more serious — and remains so. For a time it looked as if the adversaries of the new Administration and its plans, in conspiracy with the interests that desire the appropriation of Mexican lands, might be able to plunge us into a war that would have postponed and perhaps have defeated the programme for the carrying out of which the people had sent their new leaders to Washington. Yet this foreign embarrassment, too, has been so handled that the plans for domestic legislation have suffered no defeat nor postponement; the high-tariff robbery has been outlawed; and new currency has been provided. So swift and important have been the achievements of internal progress and reform that it is little wonder if the accomplishments in the field of international affairs have escaped recognition.

It is altogether probable that many Americans are not quite happy in their minds as to the policy being pursued by Mr. Wilson with regard to Mexico. It may not be a policy of immediately conspicuous glory; it is one which is bound to be recognized sooner or later as having won immense advantages for our country and for civilization. It would perhaps have been more satisfying to lovers of the dramatic to have gone down into Mexico with banners and bayonets, and have declared our will from the capital of Moctezuma. I am not one of those who believe that that would have been either difficult or glorious. I do feel that it would have led to a chapter of history certainly very difficult and possibly inglorious. A very high personage indeed once said to me, discussing the possibility of invading England with German troops: "I know of a dozen ways of landing an army in England, but not of any certain way of getting it out again." An American army would have no physical difficulty in getting back out of Mexico: nobody would use it up before it got away; the difficulty would be that greed and a false sense of national honor would do their utmost to keep us there permanently in occupation.

We do not want Mexico. We do not want its race questions, its religious question, its pauper problem, its all but total illiteracy. We can have a sufficient share of the wealth of its mines and lands just as easily, and far more honestly, while they lie under the red, white, and green flag. We have no business with Mexico. We should not know how to handle its people, either as citizens or as subjects. To assimilate its fifteen millions, diverse among themselves but alien from us to the last drop of their blood, would put upon our institutions and upon our spirit a strain which I, for one, should hate to see put upon them.

But especially do we not want Mexico because we do want the good will — the trade, if you like, the good, solid, money advantages which friendship would mean — the good will of the rest of Latin America. It would be a fool's act indeed to barter the confidence of a hemisphere for all we could gain by annexing Mexico. It would be an unhappy day for us to put soldiers on Mexican soil.

Mind you, that may have to be done yet. But it will not be done until it has really got to be done. And, if it is done, — I know nothing about it, I do not pre-

tend to know anything about it. Nevertheless — I predict that our forces will be ordered home just as soon as constitutional order has been restored; and that, so far as the power and influence of President Wilson can bring it to pass, nothing in the nature of an indemnity, either in money or land, will be asked or will be accepted. But nobody can predict how far the influence of the vast American investments in Mexico, which would be multiplied in value by being brought under the American flag, might go toward rendering withdrawal impossible.

What we do want in Mexico, and throughout Central America, is — order. That is all we want. And to secure that President Wilson has adopted the most advanced, the most courageous, and the most sensible policy that has yet been proposed.

It is to this which I refer as an extension of the Monroe Doctrine of extraordinary significance. It is the reception which has been accorded it that I describe as fortifying that Doctrine as an article of international practice. It is the results that are flowing from these facts which justify the WORLD'S WORK in the employment, in a certain sense, of the unfamiliar phrase, "An American Empire."

Even before his inauguration, Mr. Wilson was keenly conscious of the important and pressing nature of Latin-American problems. He had learned that the triumph of the Democratic Party in the election had been grotesquely misinterpreted in many Latin-American countries as a repudiation by the people of the United States of the policy of solicitude toward the countries south of us followed by previous Administrations. He had been told that plans were making, in more than one country under the Southern Cross, to start a revolution as soon as he was safely seated in the Presidential chair. A gentleman by the name of Castro, rather conspicuously identified with the revolutionary profession, actually started for Washington expecting to be an honored guest at the inauguration of a President whose motto was supposed to be: "The lid is off of the Caribbean." Any one who will take the trouble to go back and peruse the list of distinguished strangers honoring the City of Washington with their presence on March 4th last year will observe that Mr. Castro apparently desisted from his purpose of coming on.

On March 11, 1913, having been President just less than seven days, Mr. Wilson issued a statement in which, after assuring the sister Republics of Central America of his desire to cultivate their friendship and deserve their confidence, and of his earnest desire to coöperate most cordially with their leaders, he went on to say:

> Coöperation is possible only when supported at every turn by the orderly processes of just government based upon law, not upon arbitrary or irregular force. We hold, as I am sure all thoughtful leaders of republican government everywhere hold, that just government rests always upon the consent of the governed, and that there can be no freedom without order based upon law and upon the public conscience and approval. We shall look to make these principles the basis of mutual intercourse, respect, and helpfulness between our sister Republics and ourselves. We shall lend our influence of every kind to the realization of those principles in fact and practice, knowing that disorder, personal intrigues, and defiance of constitutional rights weaken and discredit government and injure none so much as the people who are unfortunate enough to have their common life and their common affairs so tainted and disturbed. We can have no sympathy with those who seek to seize the power of government to advance their own personal interests or ambition. We are the friends of peace, but we know that there can be no lasting or stable peace in such circumstances.

Read as a well-sounding proclamation is usually read, this may not be especially startling. But Mr. Wilson, as we are learning, is a man who uses words with not only precision but seriousness. Precisely and seriously used, the words, "We shall lend our influence of every kind to the realization of those principles in fact and practice," mean a very great deal.

There is behind these words and behind the whole proclamation a corollary which the President proceeded in fact to act upon: The President proceeded to say in effect: "Of course, if we are to lend our influence to the realization among you of the principle of order and regularity in

ıent, we shall have to look into
ıirs a little. We shall, for instance,
it a duty to inspect your revolu-
d decide in each case whether it
tifiable."

; much such an implication as Mr.
ıd had discovered and acted upon
ɔntroversy with Great Britain in
The dispute was one originally be-
Great Britain and Venezuela, a
as to the boundary between the
untry and British Guiana. Great
had for nearly half a century re-
arbitrate. In 1895, the United
ıovernment took the position that
teous determination of that fron-
was a matter of vital importance
In the language of Mr. Olney, in
ırated instruction to Mr. Bayard,
ıdor at the Court of St. James's,
e United States is "entitled to
ıd resist any sequestration of Ven-
soil by Great Britain, it is neces-
titled to know whether such seques-
as occurred or is now going on."

as I understand it, a parallel im-
which President Wilson now finds
Ionroe Doctrine — this time as it
ɔ the conduct of Central American
rather than to that of other
toward them.

er nations of the Western Hemis-
e entitled to look — and we have
em, and they have accepted, the
look — to the United States for
ın against invasion of their ter-
y any non-American Power, we
ıe very least entitled to see that
nments of those countries are law-
ıstituted, in order that a due and
continuity of internal responsi-
all be maintained.

Jnited States Government has
lmitted that it is in any degree
ɔle for the acts of other American
ents. We forbid foreign Powers'
the territory of any American
ɔr the purpose of punishment or
ɔut we have steadfastly refused to
ırselves responsible for any mis-
theirs that may merit punishment
ır redress. Furthermore, we have
disclaimed any obligation our-
punish or obtain redress in behalf
of non-American Powers. We have confined ourselves to the position that, disavowing the least intention to save Latin-Americans from the consequences of their acts, we merely declare that no non-American Power shall land troops to administer the consequences.

I am not saying that the logic of that position is perfect. It is a little like the permission which, according to an unregenerate song of years ago, was graciously accorded the importunate damsel who desired to go for a swim:

> Oh! yes, my darling daughter!
> Just hang your clothes on a hickory limb
> And don't go near the water.

What we should really do in case one of our Central American neighbors committed an offence against a European nation which clearly had to be punished, but which we could not permit the offended nation to punish, is a question which thus far we have successfully escaped having to answer. Many questions are best answered by never allowing them to be asked.

But we have never been able to escape an uneasy feeling that, for all our disclaimers and even on such logic as we were allowed to contrive ourselves, the day would come when we should find ourselves with a first-class war on hand, brought on by Caribbean complications. We came very near it indeed in 1895.

Now the trouble with Central America is its proclivity for revolution. And the danger of our becoming involved in complications with Europe lies almost entirely in this proclivity. Central American revolutions are always encouraged by foreigners and largely financed with foreign money. Any respectable aspirant for a Caribbean presidency ("respectable" having different connotations in different zones) may, for example, procure arms and ammunition on credit. If he succeeds, the country which now rejoices in his services as its President pays many fold for those munitions, and throws in for gratitude's sake all sorts of concessions — lands, agricultural and mineral, oil grants, harbor rights, railroad rights of way, and the like. Guatemala, Honduras, Nicaragua, Santo Domingo, Haiti — it is not

worth while extending the list — stagger under incredible national debts — held in Europe — and are looted by foreign concessionaries.

The Central American is accused of being a congenital revolutionist. In the face of the record it would be idle to deny that he has at least no more dislike of revolution than an Irishman has of a quiet shindy. But, in sober truth, most revolutions are "promoted" from Europe, in a regular way of business, exactly as a real estate scheme or an industrial combination is, or used to be, "promoted" in America. When revoluting ceases to be profitable it will cease altogether. The way to make the business of "promoting" revolutions unprofitable is to see to it that "promoted" revolutions do not succeed.

This is what Mr. Wilson is aiming at, if I understand aright. It would not, of course, be possible for a nation which was itself born in revolution to take the position that all efforts of oppressed men to "abolish the forms to which they have been accustomed and to institute a new government" must be discountenanced. Therefore it is necessary to scrutinize each revolution by itself, and to judge whether it be, or be not, morally justifiable.

That duty the United States has now assumed, as I understand it, or, indeed, as any one can see. When Mr. Wilson took steps to inform himself of the facts regarding the Huerta *coup d'état*, with a view to passing a moral judgment upon the rightfulness of the de facto government in Mexico City, he took, it seems to me, the most far-reaching and fateful step which the Monroe Doctrine has inspired in all the process of its evolution.

In the case of Mexico, judgment was easy. Francisco Madero had been chosen President practically by acclamation by a people weary of being exploited by the Cientificos who surrounded Porfirio Diaz in his later years. Madero proved incompetent. Presidents sometimes do even in countries which consider themselves superior to Mexico. They are not, therefore, with us, murdered by their generals.

The *coup d'état* that overthrew Madero in February, 1913, was in no way a revolution. It was a barracks plot, a conspiracy of a few army officers, financed by Cientificos living in exile and a few Spanish reactionaries. It was attended by circumstances of treachery so execrable, of villainy so fantastic, of cruelty so barbarous, that the story is one which the mind has difficulty in accepting as credible.

The chief actor, Huerta, an ape-like Indian, aged, one-eyed, subsisting on brandy, when the moment of his triumph was fully come, rose from breakfasting with the President's brother, beckoned a file of soldiers, arrested him, had him carried away to be shot to death and his body thrown into a hole; went to the Palace, embraced the President whose chief commander he had become through protestations of faithfulness to death, and signalled in guards to arrest him. By promises of safe-conduct out of the country, the treacherous general secured the signatures of President Madero and Vice-president Piño Suarez to deeds of resignation; hastily gathered less than a quorum of Congressmen in a Chamber filled with soldiers and commanded by artillery; had himself acknowledged as President; carried Madero and Piño Suarez out into the night and had them shot to death behind the prison.

Perhaps this is enough to suggest that there could be no question of recognizing Huerta as the head of a lawful government — once it had been resolved to scrutinize revolutions. But indeed it would surely have been impossible for tragic romance to have imagined a character so hideously villainous as Victoriano Huerta, or a career so completely justifying the refusal to recognize him. The conspiracy that began with the slaying of three thousand citizens of the City of Mexico in ten days and the betrayal and assassination of President and Vice-president, relatives and friends, went on until the conspirators were killing and exiling each other, until the Congress that had proclaimed Huerta had been by him dissolved and its members thrown into prison, and, the Constitution formally abrogated, the tyrant reigned as a confessed dictator over the oppressed, terrorized, and ruined people of the part of Mexico which civil war had not wrested

from him. It was my duty to write a narrative of those events which I cannot bear to re-read or even to be reminded of, passing, as it does, from episode to episode of impossible perfidy, degenerate malice, ingenious depravity, cynical deviltry, and savage cruelty.

Other Powers made no scruple of giving the assassin and usurper immediate recognition. Very well; the United States is not a follower of other Powers. It is, it has been from the beginning of its history, the moral leader of the world. Our diplomatic history is like that of no other government; its successes have been due to the fact that other Powers have been puzzled and undone by our moral simplicity. Phariseeism is the worst of sins, besides being extremely bad taste, but sometimes a thing must be said, even if we say it "as shouldn't." It is the mere fact that Great Powers have no consciences—but the United States has a conscience. We are a simple people, unable to rid ourselves of a prejudice against murder. No doubt we are unfit to be regarded as practical men, living in a world of unpleasant facts, but we have not learned to accept an accomplished fact wrought by an enemy of everything decent in civilization; there is within us something to which it is repugnant to welcome a Judas into the company of honorable men for the sake of trade advantages which might accrue from the welcome. This is hypocrisy, sentimentalism, Quixoticism, offensive moral superiority, so the British journals say. No, it is not sentimentalism; it is a plain, sturdy morality, to which, unfortunately, the foreign politics of too many other nations are strangers.

And it is a very practical morality.

For more than a year the United States Government has contented itself with refusing to admit the legality of Huerta's rule in Mexico City. It has made it clear to the world that it will never recognize his rule. Beyond that our Government has not deemed it a duty to go. The usurper has nevertheless maintained himself in power. He may continue to do so for some months to come. The situation is one, of course, full of dangerous possibilities. Events may at any time make patience lose the character of a virtue, but it is plainly the President's most earnest hope that the end of the hateful tyranny shall come automatically through the action of Mexicans, not of the people of the United States.

Meanwhile, our refusal to recognize Huerta has made his success absolutely impossible; our recognition would have made it easy and certain. The man is doomed; there is but one end for him. He still extorts money in small amounts from certain European bankers and English concessionaries who had invested in him heavily, and who, as gamblers often do, still desperately throw a little good money after a lot of bad. But, whether his fall come soon or later — whether it come automatically, or through further necessary action on our part — the promotion of revolutions has received a discouragement that may be trusted to make it hereafter a far rarer enterprise on the shores of the Caribbean.

There can be but a paragraph on the surprising acquiescence which foreign Powers have, within the year, accorded to the principle of our dominance in the Western Hemisphere. The troubles in Mexico were expected to bring the downfall of the Monroe Doctrine. Not a few of our faint-hearted fellow countrymen were for abandonment forthwith. The United States failing to use the strong hand in Mexico, foreign intervention, we were told in daily despatches in the press, was a matter of only a few days. European pressure was being brought to bear. European war vessels were on their way, with suspicious intentions. Europe was tired of our inactivity. We were to be pushed contemptuously aside, and red-blooded men were to act for themselves.

It was the merest twaddle. The facts were precisely contrary. There was, in sober fact, never a suggestion of any Power or Powers, singly or in concert, taking action in Mexico. Not even the violent outbreak of the English press following the execution of Mr. Benton by Villa moved the British Government a step in the direction of intervention. Sir Edward Grey made it clear, even in the

midst of the storm, that his British Majesty's Government reposed full confidence in the plans of the United States for dealing with the Mexican troubles, and had not the slightest disposition to pursue an independent course. With one accord, Europe has left it to the United States to deal with Mexico as it saw fit. The attempt of the Huertistas to involve Japan in their opposition to the United States failed utterly. From around the globe came assurance that our paramount influence in Mexico was fully understood and utterly unquestioned.

Nor is Mexico the only Latin-American country where a manifestation of our peculiar interest has been this year accepted by the other Powers with full recognition of our peculiar position. When Colombia proposed to give an English firm a concession to exploit the oil resources of that land (probably for the benefit of British oil-burning warships) with the right to construct a port, it was made clear that the thing would not be permitted. With Nicaragua we have concluded a treaty putting its custom-houses into the hands of American collectors; giving us the right to create a naval base in the wonderful Gulf of Fonseca, washing the shores of Nicaragua, Honduras, and Salvador, granting to us the sole right to construct a ship canal across Nicaragua, should we desire; and obligating Nicaragua to incur no debt and to make no foreign treaty without our consent — thus extending to the most troublesome of Central American countries the moral suzerainty which under the "Platt Amendment" we already exercise over Cuba.

And recently, to Santo Domingo, whose customs revenues we are already collecting, our Department of State has sent representatives to observe an election, in order to be in a position to pass judgment upon any revolutionary dispute that might follow it. In Haiti, we have scrutinized a revolution, and admitted its justification and the validity of the new President's claims.

Is it an exaggeration to describe all this as the setting up by the United States of a new dominion over the hemisphere, the establishing of an empire — none the less powerful because a purely ethical empire? As for material imperialism, let it be anathema, abominate, execrated, and abhorred; let that day perish wherein ambition for territorial empire is entertained for a moment in the mind of any American President; let that day be darkness, let not God regard it from above, neither let the light shine upon it. But, as for a dominion of conscience, imposing the precepts of orderly civilization upon peoples whom unhappy circumstances have theretofore too often made victims of anarchy, and imposing them by means no more hostile than the granting or withholding of its countenance — which among them will not welcome it?

The constitution of this moral empire is in the right of Justice, Humanity, and Decency to call to be their champions those who have grown strong under their favor. Its object is to summon to the obedience of the cardinal principles of civilization peoples who have been made wretched by their disobedience; to constrain the foolish to the wisdom of the just; to subjugate them, not to our will, but to the ordinary civic virtues; to displace violence by the orderly processes whereby rational men in the earth's happiest lands conduct their affairs. Its result will be the opening to the nations that come under it of unfamiliar doors to prosperity and to the attainment of the dignity that appertains to respected and respectable nationality.

Our moral empire, contrary to the ways of material empire, will aim at no perpetuity for itself; it will have become perfect only when it shall have become unnecessary. Those happier countries to the south where already respect for order prevails even as with us will never have felt its kindly yoke; while the backward peoples will emerge from its constraint, each at the moment it has learned to love, and to enforce upon itself, the righteousness that exalteth a nation.

THE ARMY'S PEACEFUL TRIUMPHS

IN ORGANIZING CIVIL GOVERNMENT IN OUR OUTLYING POSSESSIONS AND IN SUPERVISING THE ADMINISTRATION OF THAT GOVERNMENT THROUGH ITS BUREAU OF INSULAR AFFAIRS

BY

LINDLEY M. GARRISON

SECRETARY OF WAR

THE most fruitful source of error concerning the functions of the War Department is the quite natural thought that the military establishment is useful only in case of war and that the Secretary of War is the constitutional organ of the President for the administration of the military establishment.

Though this is truly the position of the Secretary of War, the functions of the War Department are so varied that, even though war became obsolete, it would on the administrative side still be fairly occupied as it is now organized, and would necessarily be continued. Other agencies might be created, but, when assembled, they would be as large and expensive as the present organization.

It is not the intention at this time to review the varied civil duties of the War Department or its great constructive work in opening up the territory of the United States, creating public works, and working out sanitary problems, but simply to describe the duties of the War Department in connection with our overseas possessions and to explain why the overlooking of these possessions, in so far as it is an executive function, was committed to this department.

Military government of the United States necessarily replaced the Spanish governments in the territory that was relinquished to the United States and ceded to the United States as the result of the war with Spain. Once established under such conditions, military government continues at the will of the Commander-in-Chief, without reference to actual hostilities and until Congress acts. The governments that were instituted in Cuba, Porto Rico, and the Philippine Islands were conducted under the authority of the President as Commander-in-Chief of the Army and Navy, and this authority was exercised, as it has generally been exercised in the past, through the War Department.

Notwithstanding the frequency in the past with which the War Department had been called on to conduct military governments and civil governments during military occupation, there had existed within it no bureau or division to which in a particular manner was committed this work of supervision. The urgent need of such a bureau or division was well set forth by Mr. Root in his report as Secretary of War for 1901, as follows:

> The work undertaken by the department has been the building up of government from the foundation upon unfamiliar ground. We have had no precedents, save the simple and meager proceedings under the occupation of California and New Mexico, more than half a century ago, and it has been necessary to decide every question upon its own merits and to make our own precedents for the future.
>
> Only thorough system could arrange, record, and keep available for use the vast and heterogeneous mass of reports and letters and documents which this business has involved, furnish answers to the questions, conduct the correspondence, and keep the Secretary of War from being overwhelmed in hopeless confusion. The War Department had no machinery for the purpose. No provision for any such administrative machine was made by law. Of necessity, by the detail of officers and the employment of the temporary clerks authorized by law, such machinery has been created in the department with a chief, an assistant chief, a law officer, a competent force of translators, accountants, stenographers, and recording and indexing and copying clerks. It is called the Division of Insular Affairs of the War Department, and it performs with admirable and constantly in-

creasing efficiency the great variety of duties which in other countries would be described as belonging to a colonial office and would be performed by a much more pretentious establishment.

When the Organic Act of Porto Rico, which replaced the military government by a civil government, was passed in 1900, the War Department had not fully organized the facilities for supervision of oversea territory, and Congress did not provide for the continuance of the relations between the War Department and the new government which had existed between the War Department and the military government. On the other hand, the Organic Act provided for a wide distribution in the United States of the executive business between Porto Rico and the United States, an arrangement that worked so badly that in 1909 the House Committee on Ways and Means recommended a change in this respect. Their recommendations, reported in a bill and passed by Congress, formed the basis of the President's executive order, dated July 15, 1909, and providing as follows:

> Under the provisions of Section 2 of this Act hereafter all reports required by law to be made by the Governor or members of the Executive Council of Porto Rico to any official in the United States will be made to the War Department, and all matters pertaining to the government of Porto Rico are placed in the jurisdiction of that department.
>
> The business of the department pertaining to civil government in Porto Rico is, pursuant to Section 87 of the Act of July 1, 1902, assigned to the Bureau of Insular Affairs.

In the Philippines, military government continued, the instruments of its execution being increasingly civilian until the passage of the Act of July 1, 1902. This Act differed in one respect from any similar Act for the government of territory of the United States. It followed the form of many such acts in ratifying and confirming the acts of the President while exercising governmental authority under his authority as Commander-in-Chief of the Army; but it further recognized the close relation between the War Department and the government that had been established under such orders of the President; and continued the relations between the War Department and the new government established under Congressional authority which had existed during the formative period of the government by executive order.

By this Organic Act the division of the War Department referred to by Secretary Root was made the Bureau of Insular Affairs and the jurisdiction of the War Department over purely civil governments in the island possessions of the United States was recognized.

That the Canal Zone should be placed under the War Department follows naturally from the fact that the War Department, of all the departments of the Government, was the one prepared to construct the Canal, to protect it after it is constructed, and to operate it. So that, following the passage of the Act of August 24, 1912, providing, among other things, for the government of the Canal Zone, the President by executive order naturally made the operation of this government subject to the supervision of the Secretary of War.

The government of the Canal Zone, however, differs materially from the government of the insular possessions that are subject to the jurisdiction of the Secretary of War. The Canal Zone will in operation most nearly assimilate to an Army post, a Naval station, and a great industrial enterprise combined. The question of government will largely consist of the operation of this enterprise and of the control of persons engaged in its operation and protection. On the other hand, in the Philippines there are approximately 8,000,000 people, and in Porto Rico, 1,200,000, and their governments present all the problems incident to modern governments.

At the beginning of any discussion of the use of the machinery of the War Department as an instrument for the government of dependent peoples, we are confronted with two deeply-rooted prejudices existing in the minds of American people and arising from the circumstances of our own history. The one is that any semblance of government by the Army in time of peace is odious, and the other is that the word "colony" must not be used to express the relationship which exists between our Government and its dependent peoples. The answer to the

›bjection is that the Army, as such, ›thing whatever to do with the civil ›ment of our possessions entrusted to War Department. In Porto Rico is not a single officer of the Army con- l with the government in any capac- In the Philippines there are but fficers detached for service with the government, and their duties are ex- ely with the constabulary, which is mi-military police force of the Islands. n the War Department itself there ıt three officers connected with the work in the Bureau of Insular Af- The civil work of the War Depart- therefore, so far as it pertains to the ›ment of dependent peoples, does not present time savor in any respect of ry government or of civil government military occupation.

: answer to the second objection is olonies are no longer looked upon as ıate spoils in any part of the world, ertainly not under our Government. esident Wilson said of our territories a:

› territories, once regarded as mere pos- s, are no longer to be selfishly exploited; e part of the domain of public conscience serviceable and enlightened statesman- We must administer them for the people ve in them and with the same sense of sibility to them as toward our own people lomestic affairs.

fly, the policy of the War Depart- ıas been to foster autonomous govern- in the islands subject to its jurisdic- o avoid interference with the govern- there established, and to protect overnments in so far as possible from rence by other departments and ıes of our Government.

icient time has elapsed to test the points in the organic acts of both Rico and the Philippine Islands, and be one of the duties of my adminis- ı of the War Department to present fficulties which we have encountered ıgress, in the confident belief that it ant relief wherever it is required.

ach of the most important acts of tion which have so far marked the present Administration, viz., the tariff, with the income tax section, and the currency law, there are important provisions that affect our insular possessions, and every step in the passage of these acts was studiously followed by this department lest the interests of the islands be overlooked.

The Tariff Act in its entirety applies to Porto Rico.

The income tax in its entirety was extended to both Porto Rico and the Philippine Islands, with the proviso in each case that its administration in those islands would be by the proper internal revenue officers of those governments and that all revenues so collected under the Act should accrue to the general governments of the islands, respectively.

Advantage was taken of the passage of the Tariff Act to remove the limitations which had been placed upon the amount of sugar and tobacco which could be imported into the United States free of duty from the Philippine Islands, and to abolish the export tax which had heretofore been imposed on certain commodities when shipped from those islands.

In the Federal Reserve Act, authority was granted for the establishment, both in Porto Rico and in the Philippine Islands, of branches of national banking associations.

Very few of the important acts of Congress are without interest to the insular possessions, and all such acts must receive the careful attention of the War Department in the hope that, if beneficial, they may be extended to the islands and, if their application would not meet local conditions, that they be not extended to the islands.

The policy of the War Department, generally speaking, favors the gradual withdrawal of the insular possessions from the field of Congressional action and the extension to the governments that have been organized in the islands of all legislative powers in so far as these powers do not conflict with national policies. This, of course, does not mean that Congress is to yield any powers of legislation, which is quite impossible under our system, but that the exercise of such powers with reference to our oversea territory shall be exceptional rather than customary.

THE NAVY: A POWER FOR PEACE

ITS MANY ACHIEVEMENTS IN BETTERING THE FOREIGN RELATIONS OF THE UNITED STATES — WHY WE SHALL NEED EFFICIENT FLEETS UNTIL ALL NATIONS AGREE TO DISARM

BY

JOSEPHUS DANIELS

SECRETARY OF THE NAVY

SINCE the very beginnings of our Republic, the people of the United States have had intimate associations and relations with the inhabitants of other countries. The American people have demanded of their Government that it should jealously maintain the policy of Washington in refusing to enter into "entangling alliances" with any nation, while cultivating friendly relations with all. The people of the United States have, through their Congress and their Administration, repeatedly sought to encourage the principles of representative government and of enlightened civilization, and to make our Government a model for all peoples that are struggling to establish governments that rest upon the consent of the governed — the only sound basis upon which government can endure.

The Navy Department was called into existence largely as a result of the attacks on peaceful American commerce by privateers in the West Indies. Our quasi war with France in 1798 put an end to these molestations. Again, in 1804, during President Jefferson's administration, our naval forces were called on to protect our intercourse with the Mediterranean, and in the successful war with Tripoli this nation was the first to guard its citizens against the piratical practices of the Barbary States. Jefferson's war on piracy on the high seas constitutes one of the most brilliant chapters in his administration, which advanced American ideals to the highest plane. So popular were the policies he inaugurated that he was succeeded by his two most distinguished disciples, Madison and Monroe, and under Monroe's administration republican government as administered by those three Presidents brought us to our "era of good feeling." So, too, the War of 1812 was a conflict to establish the rights of American seamen and American ships to the protection of their flag. From that day to this not a decade has passed without seeing our Navy called upon to uphold in some way the policies of the Nation as laid down by Congress or the Administration. The suppression of the slave trade, the War with Mexico, the expedition to Japan, the patrolling of Chinese waters, the many voyages for discovery and for scientific and commercial information, are only a few of the examples of the use to which the Navy has been put to aid, sometimes peaceably, sometimes by the use of force, the foreign relations of the United States.

Since 1898, partly due to results growing out of the Spanish-American War, partly as a result of greatly increased foreign commerce, partly because the Nation has through its representatives adopted a more definite position in relation to other nations, as for example its most honorable course with reference to the open door in China, and later the recognition of the Republic of China, we have come into closer contact with other peoples and in a more extended field than ever before. We have definitely accepted the responsibilities of a world power, not because we seek increased territories or military glory, for these are foreign to our principles and our desires, but because we believe that we can be a force in bringing about higher standards of civilization and usefulness and can aid in extending governments by and for and of the people. If a naval force was necessary in the past, it is more necessary to-day because of these added responsibilities and fields of interest. It is a significant fact that more

f the Navy have been employed on connected with our international ıs during the last two years than in evious period of peace in our history. duties have been undertaken to pro- peace, thus emphasizing the truth ntil there is an international agree- o end the excessive competition in ent and battleships, this country naintain a strong Navy for its own ıess and to promote the peace of the

t is an adequate naval force is a ın depending, first, on what is our policy, on what may be demanded avy by conditions arising out of our t, individual and collective, with rious peoples beyond our own bor- A nation cannot live unto itself ıre than an individual is independent neighbors and his environment. If sured beyond a shadow of a doubt ı call will ever be made for the use of eyond the confines of the contin- ortion of the United States — a con- ıtion devoutly to be hoped for, but t in sight — then and then only can e that there is a necessity for only a lefense and harbor defense Navy. there is not this assurance, if, on the y, there is the remotest possibility plomatic means will have to be sup- away from our own coast by armed , then it becomes our duty to exam- ıt the word "adequate" means from int of view of modern strategy and ıeeds.

s, armor, armament, and equipment, as fortifications and their relation- fleets, have changed greatly in the r years. To say what is necessary in y of ships and their equipment and s, after it is conceded that our inter- ıtside the continental part of the y may demand a Navy, a subject that s the broadest study. To-day, the power on the sea, with continued en- naval construction programmes by great nations, might in some emer- spell defeat or at least a failure to ut an adopted policy. Even if such bility is remote — and I believe it is — this country would be derelict if ıld be unready when the possible need should be imminent, and we were unprepared. It would mean, too, as a necessary result, the loss to this country of that influence among other nations which we exert to-day. Earnestly hoping, as we do, for international agreements looking to peace and to an end of policies of military expansion which impose constantly increasing burdens upon tax-payers, this country could have greater voice in bringing about this new and better day by its own preparedness than if other nations supposed it was urging a peace programme because it lacked an adequate navy to protect its interests. The only nations that will be invited into conferences desiring to reduce the burdens of preparation for war are those nations that are building navies and are able to maintain any right that they may assert.

How to prevent loss, how to maintain our existing position in case of attack when peaceable means have failed, an educated public opinion can best determine by giving heed to the trained counsels of those upon whom would fall the actual responsibilities in time of need. The belief often expressed that naval officers desire war, and therefore are not the wisest advisers upon what is an adequate navy, is erroneous. Wars are not born in the breasts of the men who must be the first to lose their lives. Most wars are precipitated by those who are never on the firing line. Naval statesmen, who have given their lives to the service, feel that it is their duty to use their influence to secure a navy that is adequate to defend their country and to meet any need. As they urge sufficient dreadnaughts, they hope and pray they may never be needed in war. Men who have risen to the heights upon which they can say in the day of crisis, "It is sweet and pleasant to die for one's country", are not those who hasten into war. Officers and enlisted men in the United States Navy love their lives as well as do men in other callings, but when called to defend their country they respond with a cheerful "aye, aye." The fact that they live afloat and must ever be ready, as well as the fact that they give their whole lives to a study of naval progress in this and other countries, makes their counsel weighty and worthy of the highest consideration.

SHALL WE CONTROL THE PACIFIC?

THE STRATEGIC NAVAL PROBLEMS THAT HAVE BEEN CREATED BY OUR POSSESSION OF OUTLYING TERRITORY AND BY THE RESPONSIBILITIES THAT WE ASSUME UNDER THE MONROE DOCTRINE — THE IMPORTANCE OF HAWAII, SAMOA, AND GUAM

BY

JAMES H. OLIVER

CAPTAIN, U. S. N.

IN ALL the world's history no country other than our own has ever claimed anything like so great an extent of the world's surface for a charge to keep, as guardian or sole possessor. The entire continent of America, North and South, the Caribbean Sea and the islands that encompass it, and almost the entire surface of the vast Pacific Ocean — over all this our arm is stretched. The Monroe Doctrine seems to be regarded very generally by the rest of the world as the extreme of arrogant assertion, and our Pacific extension as extremely bold aggression. The line which outlines all this vast extent of the world's surface must then be regarded as the boundary of the great fortress that we must protect. We are then, because of our aggressive stand, forced to adopt a defensive policy — we must keep what we have taken. Whatever or wherever may be the point attacked or threatened on all that long boundary line, there our fleet must go.

Now let us consider just what the protection of these lines of sea dominion involve for us and how best we may utilize the forces at our command, how most effectively dispose them in this fortress — a fortress partly abstract conception, partly concrete territory — which our policies and conquests have created.

Let us now consider the case of an island base, a stationary fortress, unsinkable, firmly planted in the sea, what its power, offensive and defensive, may be, what its endurance, its usefulness, its comparative military value. If the island be well situated geographically, be well isolated, and have a good harbor, then its possession may be indispensable as a stepping-stone to further advance or as a base for further effort. Yet this island, if small, having the sea itself for a wide and deep moat and the solid earth itself to bear lightly any burden of armor and armament no matter how great, may be so heavily fortified as to render futile any direct attack upon it.

What the various weapons and forces are which all together make up the whole defensive power of the military (including naval) base and what their effective range, it is necessary clearly to realize in order to determine the proper spacing interval between bases which shall insure that all these bases shall be mutually supporting and securely linked to home.

Guns, mines, surface and sub-surface torpedo craft, fleet, and mobile land forces, — these are the weapons and forces whose effective range will determine the area that can be effectually defended or threatened by any one military base. The effective range of the fleet itself, considered as a projectile (since it may properly be so considered), its radius of effort, is determined by the consideration that the fleet upon leaving its base may roam and operate for a certain space in time and distance, but must never lose the power of safe return to that base, in default of other secure refuge, for renewing its supplies and restoring its strength. Of course, this effective range will gradually change with the changing size and consequent endurance of the constituent units of the fleet. The fleet's effective range is now about one thousand miles. Hence naval base intervals should not exceed two or three thousand miles. (From Heligoland to Dover the distance is very small, and yet in war the time and difficulty of making that hos-

REMOVED FROM AMERICAN STRATEGY BY THE PANAMA CANAL

THE STRAITS OF MAGELLAN AND PART OF THE ATLANTIC FLEET ON ITS JOURNEY AROUND THE WORLD. THE CANAL MAKES PRACTICALLY ONE FLEET OF OUR ATLANTIC AND PACIFIC FLEETS AND THEREBY ADDS ENORMOUSLY TO OUR POWER AT SEA

tile journey would certainly be very great.) The effective range of the mobile land forces is usually greater than the fleet's, being equal to the fleet's effective range plus the distance which the land forces are capable of advancing inland after they disembark.

Thus everything that is capable of inflicting damage — shot and shell, mines, torpedoes, fleets and armies — may be regarded as missiles to be thrown from the base, and the base itself as a great battery and arsenal and storehouse of power.

Take in midocean any suitable small island whatever as, for example, Oahu, and imagine it to be powerfully fortified, armed, and garrisoned, and also abundantly supplied and equipped for military purposes. Now, this done, with no excessive expenditure of time or money, without any particular display of military art, the defensive power of the island of Oahu will have been rendered almost absolute. Furthermore, the offensive power of that island base, for all its quiet immobility and peaceful appearance, would be hardly less than its power of defence. For, thus prepared, Oahu would be in reality a great impregnable sea battery, which by means of its projectile fleet could cover effectively

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THE ATLANTIC FLEET *LEAVING THE DELAWARE* CAPES, BOUND FOR THE MEDITERRANEAN

all the sea around it to a distance of fully one thousand miles, and probably more.

What has been said of Oahu applies with equal truth to other islands of ours in the Pacific — Guam, Tutuila, Kiska (or Unalaska).

Two main considerations must decide in the choice of our far away extra-continental military bases in the Pacific Ocean. These are: *First*. Our naval bases should be located if possible on small islands; because, so situated, they will not easily be subject to attack by land forces and they can therefore be firmly held by small garrisons. *Second*. The spacing interval between these bases should be considerably less than the steaming radius of our fleet, and ought not to exceed two or three thousand miles.

Now, over the great expanse of the Pacific Ocean apply the two rules of selection and spacing just formulated, and observe how easily we can assure to ourselves, if we only will, the peaceful, almost exclusive domination of that vast ocean. Suitably prepared, and garrisoned by less than fifty thousand men, all told, the Hawaiian Islands, Guam, Kiska, and Samoa, could easily and for an indefinite time resist all forms of direct attack, and they would stand as irremovable obstacles to possible enemies and as firm foundations for aggressive action by ourselves. They would be at once cradles and strongholds of military power, no less essential than are the dependent moving fleets and armies themselves whose continuing power these bases alone could in certain contingencies maintain and assure. In the defensive strength of their unassailable position and in their offensive power of vigorous impulsion these suitably prepared island fortresses would embody in permanent form the very highest possible concentrations of military energy.

THE EFFICIENT FIGHTING MACHINE

I. OF FIFTY YEARS AGO: AN ODD IRON-CLAD GUNBOAT THAT WAS USED IN THE CIVIL WAR

The four places named — Hawaii, Guam, Kiska (or Unalaska), and Samoa — are not many, they are very few, and so they will appear to be when the vastness of the area to be covered by them is considered; but, few or many, they stand for an essential part of the very minimum price that must be paid for the continued secure and peaceful holding of what is our own. And if we should ever once lose them they would probably be lost forever.

In all the Philippine Islands there appears to be no place whatever which perfectly satisfies the natural requirements of a far-away base; because all the places which have been considered are so easily subject to attack by land forces in great

THE EFFICIENT FIGHTING MACHINE

II. OF 1898: THE "OREGON," ONE OF THE BEST BATTLESHIPS AFLOAT AT THE TIME OF THE SPANISH WAR

numbers — the very form of attack which we are, and probably always shall be, least prepared to resist. Subig has certain hydrographic advantages that make it superior to Corregidor, but it is less defensible; and Corregidor itself is by no means

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THE EFFICIENT FIGHTING MACHINE

III. OF TO-DAY: THE *"TEXAS," THAT IS ONE OF THE FOUR MOST POWERFUL BATTLESHIPS NOW ON THE SEAS. IT CAN FIRE A BROADSIDE OF TWELVE 12-INCH GUNS.* ONE THIRD OF THE FORCE GENERATED BY SUCH *A BROADSIDE WOULD HAVE TURNED THE "OREGON"* KEEL UP

so well isolated as to be secure from land attack. This most distant frontier station of ours needs most yet most lacks the natural advantages that are essential for perfect local defence. It is inherently weak because it is so remote, because its possible enemies are so near-by, and because its supports are so far off. Yet it can be attacked with ease and can be defended only with much difficulty. Nor does it seem reasonably possible to assure its effectual defence except through the adoption and completion of some comprehensive scheme of work which would require years of time and the unstinted employment of money and of military *engineering art.*

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THE DIRECTORS OF THE FIGHTING DEPARTMENTS

SECRETARY DANIELS, OF THE NAVY (CENTRE) AND SECRETARY GARRISON, OF WAR (LEFT), ON THE FIGHTING MAST OF A BATTLESHIP

Great as are the military disadvantages and great as is the military exposure of our far-off station in the Philippines, yet that position has this much of compensating advantage: we can steer east to reach it, or we can steer west. If our important island positions in the Pacific which lie between the Philippines and the American Continent should be properly fortified and equipped, then, without any fear of losing them and, with them, our trans-Pacific line of supply, our fleet, if in the Atlantic, could with confidence steer eastward for Manila; if in the Pacific, it could at once proceed westward, without any encumbering train whatever, sure of finding when and where needed ready means for supplying all its wants, reaching on at highest speed from one secure position to another, on to Manila. Our fleet in the Pacific would then have in fact that power of swift movement, so confident and so free, which the wise English prevision of long ago has given for an everlasting possession to the English fleet.

How is it possible to estimate, how is it possible to overestimate, the value to the English of such places as Gibraltar, or Malta, or the Cape of Good Hope? In less than a generation every single constituent unit of the English fleet now afloat, from dreadnaughts to torpedo boats, will be antiquated, worn out, replaced; for they, like fuel and food and ammunition, are all consumable things which can be built or bought as they are required. But not

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A MODERN BATTLESHIP UNDER FULL STEAM

THE TRIAL TRIP OF THE "TEXAS," ONE OF THE NEW DREADNAUGHTS OF THE AMERICAN NAVY

so with a place like Gibraltar; for as it was two hundred years ago, as it is to-day, so two hundred years hence in all probability Gibraltar will be — a position of unique, commanding, and supreme importance, raised by Nature and fashioned to military purposes by Art. Time makes it only more modern, *use only makes it* more useful, while its loss would probably be irretrievable.

Think how shrunken in power of distant effort, for all its imposing numbers, the English fleet would be if deprived of its various land supports which in such profusion and with such sure judgment are now sprinkled all over the earth. Try to

PLAYING THE NAVAL "WAR GAME"

AT THE UNITED STATES NAVAL WAR COLLEGE AT NEWPORT, R. I. THE "COMMANDER-IN-CHIEF" WRITING A SIGNAL FOR A FLEET MANŒUVRE THAT WILL BE EXECUTED BY HIS SUBORDINATES ON THE BOARD

reckon the huge supply train that would then be needed to enable that fleet to operate, let us suppose, in the neighborhood of Hong Kong; for then it would have there nothing stored up, no secure line of supply, no natural shelter against enemy or rough weather.

Without suitable bases the value of a fleet must always be greatly diminished and, in certain circumstances easily conceivable, that value might decline to nothing. Yet, wisely expended, the cost of a few battleships might easily suffice to create a powerful base of enduring value, without which, in more than one quarter where its presence might be required, the power of the greatest fleet might be reduced to almost nothing. The need of battleships is absolute, their cost great, their years of useful life few and full of troubles. Necessary, costly, ailing, and ephemeral is the battleship; for it is wholly artificial and highly complex, made by human hands and very subject to decay. Equally necessary, less costly, robust, and of ages long endurance, is the military base; for here Nature's strength and man's art unite to make of and on the solid earth something that will endure.

Sustained successful military operations must be based upon and proceed from a defensive system which is solidly organized and secure. If possible, those operations ought to be so planned that all the dangers to be encountered shall be in front, none serious in the rear, nor on the right hand nor on the left. And since the voluntarily accepted prohibitions of international law bar us in war from neutral ports and waters, it behooves us betimes to fortify and equip in peace those specially important points that will be endangered in war, and to transfer to them before the outbreak of war the additional reinforcements and supplies that they will need.

If, like similar important British possessions, our pivotal positions in the Pacific were now, or as soon as possible

MANŒUVRING THE MIMIC SHIPS IN THE WAR GAME

IN THESE PRACTICE BATTLES, THE COMMANDERS OF THE FUTURE LEARN THE STRATEGY OF A MILITARY SITUATION THAT AROSE ONLY AFTER WE HAD ACQUIRED OUTLYING POSSESSIONS THAT WE MUST DEFEND

should be, suitably armed and equipped, then we, and we only, without any train impedimenta whatever, could move freely and securely over all the Pacific Ocean. And the cost of suitably arming and equipping those Pacific positions, whereby our movements would be made so free and secure, would probably be little if at all greater than the cost of the otherwise necessary huge fleet train, obtained probably by forced purchase if obtainable at all. Such a train, so costly and so vulnerable, with its many attendant cares and painful anxieties, is the precarious alternative. Just as surely as properly spaced relay stations are essential in the make-up of a submarine cable system, just so surely are fleet relay stations indispensable to an active fleet. Those fleet relay or charging stations, which in truth suitably spaced naval bases really are, would provide all that a fleet train could possibly provide, and a great deal more besides; for they would provide *a sure refuge against* the natural storms of weather and the artificial storms of war, facilities for the care of suffering and wounded men and ships, sure means by cable and wireless for receiving and imparting information. Suitably spaced, well armed and equipped sea fortresses would be a far more serious danger to an adversary than would the additional battleships that could be had for an equal expenditure of money.

For illustration, take Bermuda. Suppose the English fleet to be securely based upon a well fortified, well equipped, and well supplied Bermuda, unsupported by any other place either on the American Continent or in the adjacent waters. Now Bermuda is less than one thousand miles from every point of the Atlantic seaboard from Halifax to Jacksonville, and it would evidently be easily possible for that English fleet, with no supply train whatever, to dominate completely the entire Atlantic seaboard. The ships in turn as necessary would repair to Bermuda

PEARL HARBOR, IN THE HAWAIIAN ISLANDS, A KEY TO AMERICAN DEFENSE

for refit and supply, just as Admiral Nelson's ships when blockading Cadiz made use of Gibraltar. Yet a garrison of ten thousand men could hold Bermuda secure for an indefinite time against a force as formidable as the English fleet itself.

There is one sure way, and, apparently, one only, of holding our own in the Pacific against any adversary; and any other suggested or conceivable possible way appears to be extremely precarious. That one sure way is to arm, and arm heavily, Panama, San Francisco, Puget Sound, Hawaii, Guam, Manila, Samoa, and Kiska (or Unalaska), and to equip and supply those places as they should be equipped and supplied for fleet purposes. Samoa and Kiska would not, like the

NAVAL WORK AT GUAM

A ROAD CLEARED THROUGH THE JUNGLE BY THE NAVY DEPARTMENT IN PREPARATION FOR THE TASK OF FORTIFYING THIS IMPORTANT STRATEGIC BASE IN THE PACIFIC OCEAN

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PACIFIC OCEAN, NOW BEING MADE INTO AN IMPREGNABLE NAVAL BASE

necessarily require docking and re-
cilities; but they should be well
and should afford safe and commo-
ooring facilities and secure refuge
enemy or rough weather. Samoa
be regarded as a place for the abso-
safe deposit of supplies that we
require; Kiska, as a formidable
e, a secure refuge, or as a possible pivot of operation for our fleet. Panama, San Francisco, Puget Sound, Pearl Harbor, Guam, and Manila, must have docking and repair facilities as well as armament, commodious and secure harborage, and means of communication by cable and wireless.

Having no army to speak of, we shall probably never be in position to begin an aggressive war against a strong military

A FORT THAT WAS A VOLCANO

ER OF AN EXTINCT VOLCANO, "DIAMOND HEAD," THAT THE NAVY DEPARTMENT IS CONVERTING INTO MORTAR BATTERY FOR THE DEFENSE OF HONOLULU AND TO HOLD THE HAWAIIAN ISLANDS

AN AMERICAN SQUADRON IN THE HARBOR OF TUTUILA, SAMOA

TUTUILA AND GUAM ARE GOVERNED BY THE NAVY DEPARTMENT INSTEAD OF BY THE BUREAU OF INSULAR AFFAIRS OF THE WAR DEPARTMENT AS MOST OF OUR DEPENDENCIES ARE

nation. Such a nation, as against us, may always choose the time of beginning a war, and may even dictate the fighting ground and choice of weapons for the initial encounters; nevertheless, we may still reserve the privilege of saying when that war shall end and where its final struggles shall be.

"COLORS" AT TUTUILA

HAULING DOWN THE FLAG AT SUNSET ON ONE OF OUR MOST DISTANT ISLAND POSSESSIONS

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THE CAMP, AT COROZAL, OF THE ARTILLERYMEN WHO WILL GUARD THE PANAMA CANAL

THE ARMY'S NEW AND BIGGER JOB

ITS RESPONSIBILITY FOR THE DEFENSE OF OUR OUTLYING POSSESSIONS — WHAT IT HAS DONE TO MAKE THEM HEALTHFUL AND TO BRING THEM INTO TOUCH WITH THE REST OF THE WORLD — A GREAT FORCE FOR HUMANITY AND FOR CIVILIZATION

BY

MAJOR-GENERAL LEONARD WOOD

CHIEF OF STAFF OF THE UNITED STATES ARMY

THE United States, for long years a great power, has become a world power, with all that this means in widespread influence and in increased and corresponding responsibilities.

It has extended its possessions in both oceans; in the Pacific, reaching almost to the coast of Asia; in the Atlantic, holding possession of and occupying situations dominating the Caribbean. Reaching far out to the south, it has connected its sea frontiers by a great canal, one of the wonders of the world, not only as an engineering feat but in the sanitary accomplishments which made its construction possible; a work of inestimable value to the commerce of the world and a military asset of the greatest value and usefulness to ourselves in case of war.

Coincident with territorial expansion have come new and increased responsibilities for the military establishment, both Army and Navy, responsibilities which cannot be avoided or shirked without loss of prestige and influence among nations. In meeting these responsibilities, and in solving the problems which they have brought in their train, much benefit has resulted to humanity. The immediate conditions of the people directly affected have been bettered, and methods and means of controlling disease, which will be of benefit to humanity for all time, have been discovered. Most of the work incident to these new problems and responsibilities has fallen upon the Army. This was natural, because the problems have, in great part, been land problems, in which hard fighting, in some instances,

A BRIGADE OF CAVALRY IN BATTLE PRACTICE AT WINCHESTER, VA.

PROBABLY THE LARGEST GATHERING OF REGULAR CAVALRY IN THIS COUNTRY SINCE THE CIVIL WAR. NOTWITHSTANDING ITS MARTIAL EFFICIENCY, THE AMERICAN ARMY'S PRINCIPAL USEFULNESS HAS BEEN IN SPREADING THE ARTS OF PEACE

A MEETING OF STOCKHOLDERS AND DIRECTORS

ERS OF THE INSULAR GOVERNMENT OF THE PHILIPPINES AT ONE OF THEIR YEARLY COUNCILS WITH TRIBE OF THE INTERIOR, AT WHICH THE WAR DEPARTMENT COMES INTIMATELY INTO TOUCH WITH E THAT IT GOVERNS

-drawn-out minor questions of a aracter against outlaws and ir- bands in others was involved. ting done, the conditions have ed for the building up of well- government with all its various ions, including the establishment ry conditions where heretofore xacted a heavy toll of human elieve that the results attained ork far more than justify the ex- in life and treasure, and that g of life resulting from the dis- that have been made has already y times greater than the loss that ent to the work.

is probably no subject on which rican public — educated and un- — is more densely ignorant than r Army, its duties, its accomplish- d its needs. There is a general as to the reasons for a military ment, its cost, etc. We hear in- men speak of the cost of the mil- blishment, including therein the r pension *system, of maintenance* of homes for disabled soldiers, and of other matters that are wholly the result of legislation and that are in no way connected with the active military establishment. They do not understand either the part it has played during the period of the opening up and building up of the home country, or much about its performances during our various difficulties at home and abroad. They know little of the part it has taken in our recent expansion other than in a general way that its performance of military duty has been creditable.

The Army and Navy have acquired strong fortresses outside the limits of the home country so that an enemy, before effecting a lodgment in it, will have to waste his energy and force in reducing these outlying fortresses. These strongholds may be compared to the great forts that surround the important commercial and industrial centres in the military countries of Europe, covering their lines of approach and necessitating reduction before the vitals of the great centre itself can be reached and occupied or destroyed.

In the Pacific we have such strong places, or bases, at Oahu, H. I., and Manila Bay, and it is hoped that at some time we shall have bases at Guam and in the Unalaska area. For the Philippines and Oahu, the necessary garrison when complete will amount approximately to 34,000 men, including in this number, in the Philippines, about 6,000 native troops.

The ideal naval base, for the purpose of land defense, which is the Army's part of the work, is a small island, with a good harbor sufficiently large to render ships seeking refuge there secure from bombardment, through batteries at the entrance or on the flanks. While meeting these conditions it should not be large enough to give ground for attack by a large landing force. A naval base situated on the mainland is always subject to this danger and the defense thereby made much more difficult. In this connection the Army must assume its principal responsibility. So we have here the Army and Navy working in the closest conjunction with a view to carrying out a common purpose, which, throwing aside all consideration of aggressive action, is a defensive one, defensive not only in the sense of defense of the home country but in the sense of protecting our foreign trade.

At Pearl Harbor, on Oahu, a great naval base is in process of construction and around it is being built up what is in effect a great land fortress. The retention of this naval base and of this fortress is vital, not only to the defense of the Pacific Coast but also to the defense of the Panama Canal. No great expedition, intended for operations against the Panama Canal or the Pacific Coast, could ever afford to leave behind it this fortress, with a fleet based on it — even though the fleet were much reduced in strength — as a constant menace to its line of communication. Its reduction, or its complete neutralization through a blockading squadron, would be imperative — and that would mean a constant detachment from the enemy's fleet.

In the Philippines, our great fortress at the mouth of Manila Bay is nearly

THE ARMY AS A CIVILIZING FORCE

1. A PHILIPPINE CHIEFTAIN GETTING FROM A SOLDIER AN ALLURING TASTE OF THE WHITE MEN'S ACCESSORIES OF LIFE BY HEARING A PHONOGRAPH FOR THE FIRST TIME

THE ARMY AS A CIVILIZING FORCE

II. AN IGOROT COMPANY OF THE PHILIPPINE CONSTABULARY; A LONG STEP UPWARD INTO THE DISCIPLINE OF MODERN LIFE AND INTO NEW CONCEPTIONS OF THE VALUE OF ORDER

completed, and should furnish a secure rendezvous for our fleets, whether of a military or commercial character, and an adequate defense for Manila, the great commercial and political centre of the Philippines.

At Panama, the Army is charged with an extremely difficult and weighty problem, namely, the defense of the Canal. This problem is now receiving most careful consideration and satisfactory plans have been adopted for this purpose. The garrison is being assembled as rapidly as conditions permit. No mere neutralization of the Canal would ever be respected by any great nation or group of nations engaged in a struggle for supremacy, for self-preservation is the first law of nature, and is as applicable to nations as it is to individuals. The entire area around the Panama Canal is nothing more or less than a great fortress, and I have always believed that its government should be essentially military, such as the great fortresses of Gibraltar and Malta, the governor having certain civil functions and officials, but being in absolute authority in practically all matters, so that a change from peace to war may involve the least possible change.

The garrison proposed for Panama will, when complete, amount to about 7,000 men. Much work has to be done there.

THE ARMY AS A CIVILIZING FORCE

III. A GENERAL SERVICE COMPANY OF THE PHILIPPINE CONSTABULARY IN WHICH THE NATIVES HAVE MADE ALL CONCESSIONS *TO WESTERN HABITS* OF DRESS AND DISCIPLINE

The tropical jungle must be cleared away and kept down over large areas. The present excellent system of sanitation must be kept at the highest point of efficiency. This fortified area, though it is accessible from either side, is, unfortunately, not accessible to us through any line of land communication, so that the garrison must be complete in every detail. The Canal is of such tremendous military importance that it is one of the greatest prizes of war in the world, and all precautions should be taken to make our hold upon it secure. The reinforcement of the garrison in an emergency might be difficult.

Though no preliminary steps have been taken for a fortress at Guam or in the Unalaska area, both positions have been considered and there is little doubt that in the future they must be defended. This will impose upon the Army still further responsibilities in the providing of garrisons, for, if these places are to be held securely, it must be assumed that the garrison, both at Guam and Unalaska, will require several thousand highly trained, efficient troops in addition to the coast artillery troops for the heavy guns. All land defenses require for their efficient protection a highly trained mobile force, to

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THE BIG GUNS AT FORT WADSWORTH, N. Y.

GUNS AND FORTIFICATIONS OF MUCH THE SAME TYPES AS THESE WILL GUARD THE PANAMA CANAL, PEARL HARBOR, GUAM, AND OUR OTHER OUTLYING POSSESSIONS

guard them against attacks from strong landing parties that might operate in conjunction with a hostile fleet. Such a mobile force relieves the artillery troops of all land defense work.

In Alaska, only a small force has been maintained — one regiment, and this for the purpose of aiding the civil authorities in the restoring of order in case of necessity.

The garrisons in the Pacific must be kept always upon a war footing. There will be little or no chance of reinforcing these garrisons after the outbreak of war, and any attempt to reinforce them, either with men or supplies, during a critical period preceding possible hostilities, would probably precipitate war. In other words, all military establishments we have or may have at points remote from the continental United States must always be maintained in a state of the highest efficiency and most complete equipment. The problems which they may have to meet may come suddenly and they will have to be met without help from home for a long time.

In the Atlantic, our problem is much simpler than in the Pacific. The Atlantic seaboard has a relatively dense population and its harbors are heavily fortified. But in the West Indies we have a very important and very serious military problem. We hold the splendid harbor of Guantanamo as a prospective naval base, so situated as to be one of the main defenses of the Panama Canal. Its position on the large Island of Cuba involves a very serious question in land defense, which, to be adequate, will necessitate a force of several thousand men and the preparation of strong, well-planned land defenses. This whole question has been thoroughly considered and the department is prepared to undertake and complete the defenses as soon as Congress shall sanction it through the appropriation of the necessary money.

In Porto Rico we maintain a part of a regiment of infantry, sufficient in case of need only for police work. It has been recommended that this regiment be strengthened and that militia, composed largely of men who have served in the regiment, sufficient in numbers to form a brigade at war strength, be organized from the people of the island, in order that there may be a force sufficient to prevent the occupation of the island by a small expeditionary force landed from a hostile fleet. The personnel of the Porto Rican regiment is excellent: the officers come from the oldest and best families on the island, and the men are a dependable and efficient lot of soldiers.

From this brief outline of our military responsibilities abroad, it will be seen that they necessitate a constant though moderate increase in the Army until adequate garrisons have been supplied. The Philippine garrison is complete; the Hawaiian garrison is yet far from complete, and the same is true of the garrison at Panama. It is most desirable that our people should understand the great importance of this phase of the Army's work. This work in its essential elements is purely defensive, but it has in it also the elements of offense, in case distant operations become necessary, because it furnishes the troops and strong places from which to launch expeditions against the enemy in time of war.

THE ARMY'S CONSTRUCTIVE WORK

Now let us consider for a moment what the Army has done as a constructive force, not only for the benefit of the non-American peoples that have been directly affected but for our own and other nations.

The Army's work in the Hawaiian Islands has been almost wholly military, and its purpose has been to build a secure defense of the Island of Oahu with its great naval base at Pearl Harbor. Its work on the civil side here is negligible in comparison with its civil work elsewhere.

In Alaska it has aided enormously in the opening of this territory, the maintenance of order, and the security of life and property. In the construction of the telegraph network that connects the remotest outposts of civilization in Alaska with the wire system in the United States, the Signal Corps of the Army has been the pioneer of that distant Arctic territory. Its achievement is unique in the annals of telegraph engineering, both in respect to the immense extent of territory, the great distance from the United States, the winter

inaccessibility of these regions, and the severity of the climate. If plotted on a map of the United States, this system would reach from Wyoming to the Bahamas, off the coast of Florida. The cables would reach from Newfoundland to Ireland, and the land lines from Washington to Texas. This system comprises all elements known to telegraph engineering — submarine, land, wireless — all working as one harmonious whole. The Alaska cable system involved not only the telegraphic unity of American territory on this continent, but also American ability and resourcefulness in a new field, cable engineering, which, until that cable was constructed, had depended on foreign skill and manufacture.

With the establishment of mining camps and towns in the interior of Alaska came the urgent need for better facilities to replace the primitive trails that the prospectors had opened. Under the supervision of its officers, and largely through the labor of the enlisted men, the Army has built good roads from Valdez to the north and west. These roads, running through rugged, mountainous country, and bridging glacial rivers, have presented difficult engineering problems whose successful solution has resulted in hundreds of miles of highways open to travel by wagon or sled. The construction of the road and telegraph systems of Alaska has demonstrated by example and not by precept that the work of the Army in time of peace in developing this new territory is as important to our country as is its potentiality for defense in time of war.

In Porto Rico, the military government was established and maintained for a considerable period following the close of the war with Spain, and the work done by the military governors made the establishment of civil government easy and simple. The military governors also accomplished marvelously good sanitary work. They had the inhabitants of the entire island vaccinated and they began that general sanitary overhauling of the island which has resulted in the excellent health conditions that exist there to-day.

In the first five years of the American occupation of Porto Rico, the death rate was heavy. The conditions that followed the war, combined with great depression in industry, unfavorable economic conditions affecting general nutrition, etc., raised the death rate, but yellow fever and smallpox as causes of death were practically eliminated. An investigation disclosed a very alarming amount of tropical anemia. This, combined with insufficient food, exposure, with its accompanying diminution of physical resistance, etc., produced a heavy mortality. In 1899, these causes accounted for 12,000 of a total of 35,000 deaths in Porto Rico.

SANITARY ACHIEVEMENTS IN THE TROPICS

The insular government thereupon established a commission, under a medical officer of the Army, for the study of anemia, and began systematic work throughout the island. They established relief stations, where those affected could report for treatment and advice. About 300,000 people were treated in the few years following the appointment of this commission, with a resulting great reduction in the death rate. This work has attracted attention to a similar condition in the Southern portion of the United States, and has resulted in a systematic campaign being waged against it in the home land. Besides saving lives, this campaign against tropical anemia, or hookworm as it is better known, has brought about a tremendous improvement in the physical condition and consequently in the energy and working power of the people. The death rate in the island has been reduced from about 33 to the thousand during the first five years of the American occupation to about 23 to the thousand for the five-year period from 1904 to 1908, or a reduction in yearly deaths of about 1,300 people from tropical anemia alone. This yearly total exceeds the loss in killed in the Spanish War.

In Porto Rico the Army faced the problem of civil administration also. Here this problem was not so difficult and complex as it was in Cuba, as Porto Rico had not undergone the wasting effect of long and bloody wars. But, such as the task was, the first execution of it fell to the military governors. It was under them that Americans established an excellent system

of schools, good sanitary regulations, and sound municipal and insular administrative methods. The Army here, as elsewhere, had to lay aside its arms and turn its energies to the establishment and upbuilding of civil government.

In Cuba, the wonderful work of Dr. Walter Reed and his associates in connection with yellow fever is too well known to require more than a reference. The result of their work has been not only to wipe out yellow fever as a tropical disease in all communities where ordinary precaution is taken, but it has resulted in making the tropics, so far as this dread disease is concerned, a white man's country for all time. And it has done away with the terrible epidemics of yellow fever which used to affect the southern United States, inflicting a loss of countless millions of dollars through the suspension of trade and travel for long periods of time over vast territories.

In Cuba, excellent work was also done in controlling malaria.

The betterment of sanitary conditions was followed up in other directions. The people of the island were vaccinated; smallpox, formerly one of its great scourges, disappeared. Here, again, the improvement of sanitary conditions brought about a great improvement in racial energies. The people do more and better work, and are more efficient in every way. These improved sanitary conditions trace their origin directly to the military government, and were put in operation largely by the medical officers of the Army, with the strong support and assistance of their military superiors.

In Cuba, the civil problem was peculiarly difficult. It was an island with 1,800,000 inhabitants, long tried by bloody wars fought to the bitter end with all the relentlessness which characterizes wars among people of the same blood. The people were exhausted; bitter animosities still existed; Spaniard and Cuban stood apart, each filled with the enmities of the late struggle. The Army's duty was to reconcile these elements; to suppress brigandage that was a result of bands of armed irresponsible soldiery; to combat yellow fever and widespread sickness due to various tropical diseases; to build up a form of government which could be turned over to the Cuban people to be carried on as a republic, and to build it up from the remnants of one of the oldest of the Spanish colonies. They had to help prepare a new constitution, hold elections, and turn over to its people a fully equipped Cuban republic. This was done entirely under military officers who used to a very large extent the best elements of the native population. These Cubans were intelligent and loyal, and performed in a highly creditable manner their portion of the work.

THE ARMY AND THE PANAMA CANAL

Were it not for the results that were attained in Cuba in the control of yellow fever, the Panama Canal could not have been dug without a loss of life so tremendous that it would have been prohibitive. The French had energy, money, and ability, but they were confronted by an enemy so deadly that demoralization resulted, and with it the abandonment of the work. Any one who has gone through a great epidemic realizes how subordinate other things become to the great majority of people when their lives, or the lives of their families, are endangered every day. Only the strongest and most courageous keep up. Confusion follows in the mass, and great projects fail.

The credit for the construction of the Panama Canal can justly be claimed by the Army. Much good work of organization had been completed by the civil engineers previously in charge; but to Colonel Goethals and his able corps of assistants belongs the credit for this great work. What Colonel Goethals and his assistants did in engineering, Colonel Gorgas, the member of the Commission who was in charge of sanitation, and his able subordinates, did with equal efficiency in everything pertaining to sanitation. The whole work was conducted with admirable coöperation. Working under the ablest officers and through an admirable organization, under sanitary conditions which rendered life safe, this great work has been pushed forward in a manner which has compelled the admiration of the world. It is a wonderful implement, both

for commerce and war, and its safe-keeping must be entrusted largely to the Army.

In the Pacific, especially in the Philippines, splendid administrative work was done by the early military governors. They laid secure foundations for the structure which was subsequently reared by the Philippine Commission. The work of the early Army administrators especially is remarkable because it was done entirely by men who had had no previous training in this kind of work, whose only guide was a high sense of duty, and whose principal weapons were energy, honesty of purpose, perseverance, and a more than average degree of intelligence. The work was made more difficult by rebellion, which existed throughout the greater portion of the archipelago; by perplexing and dangerous sanitary conditions; by the tropical climate; by the lack of transportation facilities and of roads, and by a separation from the base of supplies that was measured by the wide Pacific. Yet they crushed rebellion, restored order, with the exception of the minor disorders among the wild non-Christian people, built up an efficient customs service, laid the foundation of a school system, established an effective administration of justice — all this among an alien people, under conditions of the most trying description.

At a later period, after military government had been superseded by civil in the northern islands, it was established and continued until the fall of 1913 in the southern or Moro portion of the archipelago. Here a civil government is now established, and to-day the Moro Province is among the most prosperous in the Islands.

Altogether, then, we find that the Army has played not only a very important part in the acquisition of this new territory, but that it has been in all instances, with the exception of the Hawaiian Islands, the agent for the establishment and conduct for a time of a well ordered government and the agent through which it was transferred to the duly constituted civil authorities. And we find that its work in sanitation has been of worldwide and indispensable value. Its recent demonstration of the efficacy of the anti-typhoid serum is especially noteworthy.

In running over this very hasty statement of the Army and its achievements, growing out of our new possessions, it must be evident to every one that the constructive work of the Army, or, I might say, its life-saving work, has been many times greater than its destructive work. So few people realize what the life-saving work of the Army has been that I have dwelt at considerable length upon this side of its activities. What has its work, both constructive and destructive, cost the Army in lives lost? Little compared with the lives already saved; and relatively nothing compared with its value to generations to come. The great casualty list incident to civil occupations hardly attracts attention. People scarcely realize that in ten Fourth of July celebrations, the last in 1910, in round numbers 1,800 people were killed and 35,000 wounded, most of them young children, celebrating a war of 140 years ago. Still fewer realize that this number of killed equals those killed in the Spanish War, the Philippine Rebellion, and the Indian Wars for a considerable period, and that the wounded are about seven and one half times as many as all the wounded of these wars. One constantly hears the outcry against the waste of life and of economic efficiency that is incident to the maintenance of an army. Few people know that the lives which have been saved as a result of its work outnumber many times those that were lost in the discharge of its duties, or that its work in doing away with great epidemics has saved to the country far more than the cost of its maintenance.

The scope of this article does not permit reference to the Army in opening up the West, its life-saving work year after year in the great Mississippi floods, the terrible floods in Ohio, the earthquake in San Francisco, and numerous other instances.

In conclusion, it can be safely said that the work of the Army in civic accomplishment is fully as creditable as is its record in the field; and I believe its work has been done in such a way as to have gained for it the confidence of the American people to the extent that they now look with complete faith for the efficient performance of any duty that is assigned to it.

EXPLORING THE INFINITELY LITTLE

HOW THE ASTRONOMERS OF MEDICINE ARE CHARTING THE UNIVERSE THAT LIES BEYOND THE RANGE OF THE MICROSCOPE — FINDING THE GERMS THAT CAUSE THE COMMONEST DISEASES AND THAT NO EYE CAN SEE

BY

BURTON J. HENDRICK

PERHAPS the most dramatic episode in the history of astronomy was the discovery of the planet Neptune. This enormous celestial body, lying nearly three billion miles from the sun on the dim frontier of the solar system, had for centuries eluded the cleverest observers. The story has been often told how Leverrier, long before he had caught a glimpse of the wanderer, convinced himself that it was there. He could not find the planet itself, but he detected the results of its behavior. Certain queer proceedings were going on in those outer regions; staid and sober planetary bodies were disporting in unexpected fashion; in particular, Uranus was constantly disregarding the orbit that the mathematicians had marked out for it. Only another planet of huge proportions, Leverrier reasoned, could explain such deviations, and he set himself to find out where it was. After a few months' hard labor, he suggested that astronomers with especially powerful telescopes point them toward a specified part of the heavens at a specified time. They did so, and a new planet immediately swum into their ken. The performance not only caused the recognition and charting of a new member of the solar family, but was one of the greatest triumphs of the human mind.

In many scientific laboratories, and especially in the Rockefeller Institute, of New York, a new kind of astronomer is now performing similar miracles. These searchers, however, are not using mighty telescopes. They are not projecting their intelligence into the world which is infinitely large, but into the world which is infinitely little. Instead of a universe of unimagined size, these workers are satisfied with minute preparations, perhaps half an inch in diameter, carefully laid upon a microscopic slide. Yet their cosmos is as infinitely filled with definite bodies in a state of motion as was that with which Leverrier dealt. Many of these bodies are clear, visible; they have been definitely described and charted. What they will do under given conditions can be accurately foretold. Besides these, however, there is an infinity of particles which the most powerful instruments do not reveal. The Rockefeller astronomer is in precisely the same position as the midnight watcher at the telescope. Like Leverrier, he knows that his wanderer is there, only he cannot see it. He knows, too, in a similar way — by the effects which it produces. He can gaze for days at a clear specimen in a test tube and see nothing in it. He can then take this same substance, inject it into a guinea pig or a monkey — into a man, too, for that matter — and at once produce a frightful and fatal disease. Minute and undiscernable as these organisms may be, it is conceivable that they might change the course of human history.

The search for these tiny particles is now one of the greatest subjects in scientific medicine. The universe which is no bigger than a pinhead is as interesting as the external universe of the stars; and probably more important in its bearing upon human civilization. In the last three years the workers at the Rockefeller Institute have made several discoveries in this field.

The man who first looked upon the organisms that cause contagious disease was

the man who, appropriately enough, made the first large magnifying microscopes. It was in 1675 that Antony van Leeuwenhoek, a lens grinder of Delft, Holland, placed a drop of water under his magnifiers, and saw, "with the greatest astonishment," a hitherto unsuspected world of living things. They were all there, the *bacilli*, the *cocci*, the *spirrilli*, and the other living and mobile organisms that have since become commonplaces of modern life. Van Leeuwenhoek called them *animalcule* — little animals — and published a book about them. He soon found that these lively living things existed in other places than drops of water. He could hardly turn his instrument upon any object without finding them. He discovered them in sea water, in the intestines of frogs and birds; and he was especially struck with the lively antics of certain wiggling corkscrew creatures which he recovered from the tartar of his own teeth — the well known *spiro-chætes* of modern science. The industrious Antony ground finer lenses year after year, and the finer his lens the more *animalcule* he discovered. But the clever Dutchman made one mistake. He imagined that he was dealing with extremely minute living things; in fact his *animalcule* were the giants, the mammoths, of the invisible living world. Far below them in the order of size were microbic lilliputians; things too minute for Antony to see, even with the excellent microscopes of which he was so proud; things which the microscopes of to-day, with their magnifying power of 2,000 and 3,000 diameters, have not disclosed.

CAUSES OF COMMON DISEASES UNKNOWN

Once Pasteur had definitely shown the power of these living micro-organisms, and proved that each disease had its particular organism, laboratory workers everywhere set themselves the task of discovering them. Pasteur himself was chiefly instrumental in isolating the first of these, the bacillus of anthrax — a terrible disease of sheep and cattle. He then found and cultivated the bacillus of chicken cholera. A few years afterward, Klebs and Loeffler found the organism of diphtheria; and in 1882 Robert Koch made his epochal discovery of the germ of tuberculosis. The new hunting game was now fairly on. From the earliest days, however, the discoverers met with peculiar difficulties. For many diseases they had no trouble in running down the particular microbe; others proved unexpectedly agile and elusive. Many came boldly out into the light of day; others slyly hid themselves in undiscovered corners. And, in some cases, these unobtrusive organisms were associated with the commonest and most infective diseases known. Back in the eighteenth century, Jenner conquered smallpox with vaccination; but the most industrious search for thirty years has disclosed no trace of the smallpox microbe. Medical men deal with an unknown agent to-day, just as Jenner did a hundred years ago. Measles and chickenpox are the commonplaces of every household; but their germs have eluded the most elaborate attempts at detection. Reed and Carroll showed us how to conquer yellow fever; no one, however, has succeeded in imprisoning any micro-organism of the disease. Scarlet fever, one of the most contagious diseases known, has also successfully hidden its secret. Pasteur, who discovered a way to control hydrophobia, searched patiently for its organism, but did not find it. Typhus fever, the scourge of American cities fifty years ago, still prevails in attenuated form; but no one has isolated its agent. Trachoma, a disease introduced chiefly by immigration, has also so far concealed its definite cause. There are many more diseases that afflict animals — strange sounding maladies like foot-and-mouth disease, blue tongue, African horse sickness, swamp fever, distemper of dogs, and guinea pig epizootic — whose living causes, up to the present writing, have refused to disclose themselves under the most powerful microscopes that are made.

ORGANISMS THAT GO THROUGH FILTERS

Years ago the enemies of the "germ theory" found much comfort in the helplessness of science in this direction. The investigators, they said, were clearly barking up the wrong tree; they could not find micro-organisms in these diseases simply because micro-organisms did not exist. They had found them, or claimed to have

found them, in tuberculosis, typhoid fever, dysentery, and diphtheria; why, then, could they not find them in measles, smallpox, and scarlet fever? This line of reasoning, of course, would be about as logical as would have been a claim put forth, a century ago, that the planet Neptune did not exist because no telescope could find it. In 1898, however, a German investigator, Loeffler, ended this kind of talk. He was experimenting with foot-and-mouth disease in cattle. This, an extremely destructive disorder, gets its name from the fact that it is accompanied by small ulcers in the mouth and feet. After a useless search for the organism, Loeffler decided to try a new experiment. He made a watery emulsion composed of salt solution and extracts from the ulcers of diseased cattle and compressed it through a filter. These filters are used, in laboratories and out, for a specific purpose. They are made of porcelain or other impervious matter and their minute meshes catch and hold, as in a microscopic sieve, all known bacteria. The principle is the same as in the ordinary water filter which we use every day for freeing drinking water from typhoid and other germs. Dr. Loeffler, as a result of his experiment, obtained a clear, watery liquid, which was inevitably free from bacteria of conventional size. He injected this watery extract into healthy cattle; the animals presently sickened and died of foot-and-mouth disease. From this experiment he could draw but one conclusion. There was something in this watery fluid which had caused the disease, and this something, inasmuch as it had passed through the filter, was wonderfully smaller than any known micro-organism. Further experiments clearly indicated that the infective agent, whatever it might be, was alive. The investigator found that, although it had "an excellent constitution" — was much tougher, held much more tenaciously to life than the common herd of bacteria — still its vitality could be destroyed. If he dried it for twenty-four hours at a temperature of thirty-one degrees centigrade, it lost its virulence. Extreme heat or cold, through a considerable period of time, made it harmless. Yet Loeffler could take his clear extract, place it under the most powerful microscope, and see nothing. There was not a blemish — not even a turbidity. The liquid looked as clear and free from organisms as when seen with the unassisted eye.

Two years later, Reed and Carroll, in Cuba, showed that a similar state of affairs prevailed in yellow fever. We have heard so frequently that only the bite of a mosquito can transmit this disease that we have come to believe it. In fact, as Reed and Carroll showed, there is one other way in which we can acquire it, and this independently of the mosquito. However, we shall have to perform the same operation that the mosquito performs, only with different tools. Just extract a small quantity of blood from a yellow fever patient. You can dilute this blood with water to an extreme attenuation. If you then inject this extract into a healthy person, he will almost certainly get the disease. The infectivity of such injections, even when almost no blood remains, is fairly terrible. In some cases one part of blood to a thousand parts of water produces the disease as readily as the original specimen. Clearly the organism, minute as it is, exists in inconceivably large numbers.

These experiments started a new work in bacteriology. They created virtually a new branch of the science. In want of a better name the agents or organisms that went through fine porcelain and earth filters became known as the "filterable viruses." Thirty-one diseases are believed to be caused by this class of living things, and others are being rapidly added to the list.

A NEW DISEASE BELTS THE WORLD

Recently, as the result of studies extending over five years, the scientists of the Rockefeller Institute succeeded in isolating one of these organisms. This was the one that causes infantile paralysis. Probably no one disease in recent years has so aroused the interest of medical scientists. In all parts of the world, especially in Germany, France, and the United States, investigators have specialized in studying it. They have had practically a virgin field, for, until six or eight years ago, practically nothing was known concerning this disease. There had been no demonstration that it was contagious; necessarily nothing

was known concerning the agent, the method of communication, and still less concerning its treatment. It was not until the middle of the nineteenth century that it had been recognized as a specific disease. Perhaps this was because, at that time, infantile paralysis was exceedingly rare; more probably because its manifestations easily caused it to be confused with other palsies and paralyses. At all times, here and in Europe, there had been sporadic cases in which small children — commonly under five years — after undergoing a course of fever, suddenly became almost completely paralyzed. In a considerable number of cases they remained in this crippled condition all their lives. In some instances these little children had had no preliminary sickness; they would go to bed in apparent health and wake up in the morning almost completely paralyzed. In the United States, the disease in epidemic form had been practically unknown. But in 1905 it burst out in considerable virulence in Norway and Sweden, and thence it started on a mysterious circuit of the world. Practically no country has escaped. In Europe there were epidemics everywhere, from Scandinavia to the Mediterranean; in North America its ravages extended from Alaska to Alabama; the West Indies, South America, Australia, and the South Sea Islands were likewise visited. The northern sections of Europe and the United States and Canada were the areas that suffered most.

THE ORGANISM OF INFANTILE PARALYSIS

At the Rockefeller Institute, Dr. Simon Flexner, who had just succeeded in obtaining a curative serum for cerebro-spinal meningitis — a remedy which has enormously reduced the mortality in that disease — quite naturally turned his attention to this new spinal affection. Dr. Flexner and his associates early succeeded in experimentally transmitting the disease from man to monkeys and finally from monkey to monkey. They also demonstrated that the micro-organism belonged to the ultra-invisible class; the ease with which it passed through the finest porcelain filter showed that, in all probability, it was one of the most minute that is known to cause disease. The method was to obtain an extract, by suspending a piece of the spinal cord of an affected monkey in distilled water. From this the experimenters obtained a clear, watery filtrate. Placed under the most powerful microscope, one could see only innumerable bright dancing points — particles which are usually present in similar preparations and, therefore, probably not necessarily associated with the disease. This filtered extract, however, had enormous destructive power; a monkey which had received only one seventieth part of an ordinary drop presently fell ill and, following the usual course of the malady, became completely paralyzed.

Clearly, this watery fluid contained the virus of infantile paralysis. Judging from its extreme virulence, this micro-organism existed in enormous quantities. But was it possible to isolate it, to make it grow in culture tubes like bacteria, perhaps to catch a glimpse of it? Apparently not, for many painstaking investigators, here and in Europe, had unsuccessfully attempted to find it. But the famous Japanese bacteriologist, Dr. Hideyo Noguchi, a member of the staff of the Rockefeller Institute, has developed particular skill in exploring this diminutive field. He is ingenious at devising new methods of work; in 1911 and 1912 he achieved great success in cultivating certain micro-organisms which, up to that time, no scientist had isolated. Dr. Flexner and Dr. Noguchi now started together on this new quest. The methods that they used are altogether too minute and technical for popular description. All the average citizen would have observed, after several weeks' experimenting, would have been a series of test tubes filled with different colored fluids. One would have had a particular interest. This was filled half way from the bottom with a watery, yellowish substance — in reality ascitic fluid, the kind of material that fills the abdominal cavity in the disease of dropsy. Above this, extending to the wad of cotton that is commonly used as a stopper in test tubes, was a layer of purplish paraffin oil. The most interesting ingredients, however, were two minute pieces of solid substance lying in the bottom of the tube. One of these, a little cube

perhaps an eighth of an inch in thickness, was a piece of rabbit kidney. The other, lying closely pressed against it, and of equal size, was a piece of the brain of a patient who had died of infantile paralysis. This latter specimen, of course, was in all probability swarming with the invisible organisms. The little living particles are almost as particular about their food as human beings are: on certain things certain species thrive and get fat, on others they quickly die of starvation. These several materials, the rabbit liver and the ascitic fluid, were placed in this close association in the hope that they might tempt the germs to increase and multiply. They were provided as their dainty food — the most tempting morsels which the ingenuity of the experimenters could devise. They had already tried many other appetizers without success. The commonplace laboratory foods that at once appeal to the everyday microbe made no headway with this new, invisible tribe. Would the rabbit liver and the "ascitic fluid" turn out to be a real Lucullan banquet?

A MICROSCOPIC MILKY WAY

The first indication that the new microbes were coming out of their shell — that is, out of the small segment of brain tissue — was when a faint opalescent glow began to surround this specially prepared food. In a few days, this opalescent glow began to ascend in the tube, until it extended nearly halfway to the top. There was nothing here, at this stage of proceedings, that resembled micro-organisms; the phenomenon was simply a brilliant, iridescent turbidity. In fact, however, it was composed of an infinity of living things. It was a kind of microscopic milky way. We are all familiar with the nightly marvel in the skies — the powdery mist that extends across the heavens — a streak of gold dust which, under the telescope, discloses itself as an endless collection of stars so far away that they look merely like a cloud. The microscopic universe, as this experiment showed, also has its milky way — clusters of particles so minute that the assembled mass looks merely like a faint turbidity. Ultimately, by using the most powerful microscopes and the most brilliant method of illumination, the experimenters saw the individual organisms. A specimen of the fluid placed on the microscopic slide disclosed quite an animated scene. It was filled with dancing bodies — protein molecules — and other granules. Then, here and there, hardly clearer than faint shadows, appeared other objects. They were shaped like globes, hung together in chains, pairs, and small masses. Unlike most micro-organisms, they had no independent motion, and only the keenest eye could separate them from the other granules on the field. The usual laboratory device — that of staining with aniline dyes — immediately brought them into prominence. They appeared variable in their size, but the average was about one fifth of a micron. That is, it would take about 130,000 of them ranged side by side to make an inch.

Bacteriology long ago laid down a classical system of proof for testing experiments like this. No organism is finally identified until the experimenter has done certain definite things. First he must find it in an animal or human being who is suffering from the disease. Then he must cultivate it outside the body. He must then inject this culture into another animal, which must have the specific disease. Finally he must find the same organism in this diseased animal. Dr. Flexner and Dr. Noguchi found that their new parasite met all these requirements. Healthy monkeys into which they injected it fell ill and died of infantile paralysis. From these animals the organism capable of similarly infecting others was recovered. The cycle of proof was thus complete. An "ultra microscopic virus" had actually been seen and taken into captivity.

LOOKING FOR THE CAUSE OF RABIES

From this discovery Dr. Noguchi turned his attention to an even more perplexing problem — the cultivation of the germ of rabies. Here was a subject worthy of the highest talents. Here was another of the excessively minute organisms which had successfully evaded the most painstaking search. Pasteur, as already said, failed in all his attempts to isolate it. Since his time, many investigators, in all parts of

the world, have made fruitless efforts of the same kind. Many have announced the discovery only to have their statements subsequently disproved. It had come to a point, indeed, where any statement on the virus of rabies aroused general scientific suspicion. The man who came nearest actually to discovering something was an Italian worker named Negri. About ten years ago he found peculiar but well defined particles in the brain of a rabid animal, which, he was persuaded, caused the disease. These so-called "Negri bodies" have figured conspicuously in the literature of hydrophobia ever since. In the brains of many rabid dogs they were found; in other animals, however, which had died of the disease, they did not appear. This fact apparently disproved the idea that they were the long-sought virus. On the other hand, when injected into the brain of a healthy dog, they usually caused the disease. The severest forms of hydrophobia, however, were caused by the use of a suspension in which no "Negri bodies" could be found.

As is the case with most micro-organisms, the germ of rabies increases in virulence as it passes from animal to animal. The usual method, in experiments with inoculation, is to take a specimen of the spinal cord of an animal which has died of the disease, and to inject this into the nervous system of a rabbit. After a comparatively long interval, say thirty days, hydrophobia regularly appears. When a piece of this rabbit's spinal cord is injected into another rabbit, the disease manifests itself within a shorter time. After each successive inoculation, this "incubation period" is shorter until finally the material transmits the disease in seven days. From now on the experimenters cannot reduce the period; it remains constant or "fixed" after seven days. From this fact this kind of virus, the most powerful of all, is known as "fixed." Now these so-called Negri bodies, which are multitudinous in the dog's brain from which the first specimen was taken, disappear in the course of these inoculations; in the "fixed virus," the most terrible of all, there is not the slightest sign of them. If the experimenter, however, after having obtained his "fixed virus" by successive experiments on rabbits, injects this material into a dog, these peculiar organisms appear again in enormous numbers. This amazing fact has whetted the curiosity of many investigators, but none has ever succeeded in explaining it.

A PARASITE THAT ASSUMES MANY FORMS

The "Negri bodies" are not excessively minute; any skilled observer can find them. But the "fixed virus" has hitherto presented an unobscured field. Dr. Noguchi, however, by utilizing his original methods, now began to find traces of new particles. They were so minute that he describes them simply as "points." These agents, however, he has succeeded in cultivating in the test tube and in actually photographing. His photographic plates look much like the picture of nebulæ and groups of asteroids which one finds in astronomical journals. Dr. Noguchi believes that these infinitely small "points" are really parasites — minute animal bodies, as distinguished from bacteria, which are vegetable in character. He has cultivated them through several generations, and has produced hydrophobia with them. As a result of his experiments, he has formulated an ingenious theory. He believes that the "Negri bodies" and his own death-dealing "points" are really the same organism at different stages of its growth. It is a parasite, that is, which undergoes a regular cycle; like butterflies and beetles in the larger insect world, it comes into existence as one thing, stays in a chrysalis stage for a time, and emerges as something else. At the beginning, it may be a "Negri body;" at the end, the "point" which Dr. Noguchi has found; at other, undiscovered stages of its career it may have assumed another protean form. Dr. Noguchi's work is still unfinished; it is a safe prediction, however, that, before his experiments are ended, the world will clearly understand one of the most baffling of all the problems in medical research.

NEW LIGHT ON CANCER

Other experiments indicate that another bacteriological dwarf may cause one of the commonest and most mysterious of human

ts — cancer. Recent work at the eller Institute gives some basis for ea. The discovery of the cause of would probably be the greatest ontribution that could now be made icine. Statistics seem to show conly that the disease is increasing. is no human disorder, unless it be ılosis, that is receiving so much ic attention; and there are many tions, in this country and Europe, are devoting all their energies to its Millions of dollars have been in-in endowments; almost every month ew laboratory or hospital is started. ver may be the outcome of certain e agents which are still in the exntal stage — such as radium — there obably be no actual conquest until use is definitely established. Rework in the last few years has theregely centred in finding this cause. early days there was undisputed n a bacillus or a parasite. This on fell into disrepute, however, owing to the over-enthusiasm of its tes. Their facility in discovering ve organisms discredited their whole tion. They found all kinds of in cancerous tissue — there was a month that did not bring forth new "cancer microbe." Medical re contains somewhere between nd forty "discoveries" of this kind. ct remains, however, that no one er found an organism that actually iced the disease. There was one way, and one way only, in which cer could be transmitted from one to another. This was by transion. About fifteen years ago several ators, notably Loeb in this coun-l Jensen in Denmark, discovered tumor, growing on one mouse, could ed and made to grow upon another. ase did a new tumor arise; the old s simply transferred to a new ani-This fact apparently struck hard microbe theory. Only the cancer lf produced cancer; all attempts to it in any other way failed.

within the last two or three years hest medical authorities, here and pe, scouted the idea that a *micro-*organism could cause this disease. The problem was simply one of tissue growth; and many ingenious theories, all too recondite for description, were advanced to explain it. The idea that an ultra-invisible virus, similar to those already described, might act as a provoking agent early received consideration. Definite experimentation seemed to dispose of this idea. The tumor cells of a mouse were taken, made into an emulsion, and passed through a filter fine enough to hold back the cells. The watery extract obtained was then injected into healthy mice. A tumor never resulted. This experiment, performed many times, seemed to confirm the idea that only the cell itself could propagate the disease.

CANCER IN CHICKENS

Up to this time the laboratories had experimented chiefly with rats and mice. This was largely for convenience. They needed animals, naturally subject to the disease, that they could obtain by hundreds and thousands; mice, rather than dogs and horses, clearly fulfilled these conditions. Other available laboratory animals, such as guinea pigs and rabbits, were not used, as they are only rarely the victims of cancer. Thus it happens that nearly all our scientific knowledge of cancer is based upon its workings in rats and mice. Strangely enough, one other every-day animal was overlooked. The common chicken is even more subject to cancer than are rodents. The disease is found on a considerable scale in nearly every large barnyard. About four years ago, Dr. Peyton Rous, a member of the Rockefeller staff, obtained a fine Plymouth Rock with a large growing tumor. Attempts to transplant this tumor had interesting results. At first the growth would not develop in any other breed than the Plymouth Rocks that had formed its primary seat. Ultimately, however, all kinds of chickens proved susceptible. And now, merely at a venture, Dr. Rous decided to try the experiment that had proved unsuccessful on mice — to determine whether a filtrate, free from cells, could communicate the disease. He took the utmost pains to use a filter through which the

tumor cells could not possibly pass. He then subjected his cells to treatment — such as drying and crushing — which, had any cells accidentally passed through, would certainly have destroyed them. He then injected the filtrate into a healthy chicken. A virulent cancer subsequently appeared on the site of inoculation!

In other words, Dr. Rous had found another disease that was caused by an excessively minute organism. Cancer in chicken belongs in the same class as rabies, scarlet fever, measles, and several other diseases in man. From this experiment one might naturally conclude that human cancer is caused in the same way. The chicken tumor has all the essential characteristics of the human disease; it grows to large size, spreads to other parts of the body, and kills the animal, which usually has the same external manifestations as its human fellow sufferer. If a microorganism produces the disease in a barnyard fowl, why should it not do the same in a man or woman? At the present time we can only argue about this point, as experiments on human beings are hardly practicable.

Several other facts, discovered by Dr. Rous, demonstrate that, in cancer, we have an eccentric disease. Thus this chicken virus produces the disease only in chickens; it will not produce it in rats or other animals. Moreover, in chickens it causes only one kind of cancer. The virus was originally obtained from a cancer of the breast. Wherever the inoculation is made on other chickens, breast cancer always results; if injected into the liver, a section of breast starts growing on that organ. In another chicken, Dr. Rous found a similar virus from a bone tumor. Whereever he injects this in other fowls, he now obtains a growth of bone tissue. The experimenter can easily produce a growth of bone in the breast, in muscular tissue, or on any part of the body he selects. This fact suggests the intricacy of the cancer problem, assuming that an ultra-minute organism causes it in human beings. It may be that one virus causes cancer of the breast, another cancer of the stomach, another bone tumor, and so on. As there is a large assortment of types, this recent discovery can hardly be regarded as having simplified the problem.

However, profoundly as these studies have influenced the situation, there is yet no scientific demonstration that a filterable virus causes the disease in human beings. All one can say is that it does do so in fowls. Under any circumstances, we need have no fear of cancer infection. The cancerous chickens have been kept in the same brood with hundreds of healthy fowls for months at a time, and not a single one has "caught" the disease.

There was some apprehension, after Dr. Rous's discoveries, apparently indicating an infectious origin of this disease, that they might unfavorably affect the situation of human patients; that healthy people might fear to associate with them. Such an attitude would be unfortunate and ill-conceived. Experience extending over many years shows that, as with the chickens at the Rockefeller Institute, there is practically no likelihood of one human being directly transmitting the disease to another. If it is communicable at all, the process must be so intricate and roundabout that, as a practical matter, it may be ignored.

HOW SMALL CAN LIVINGS THINGS BE?

Just where will this search for the smallest organism end? What is the downward limit of size in living things? Already it is plain that the tiniest particles of matter, like the most enormous heavenly bodies, differ from one another in size and glory. Some will pass through reasonably coarse filters; others slip through the very finest. It is conceivable that, though we should increase the strength of our microscopes a thousandfold, there would still be organisms so inconceivably small that we should never find them. It is probably true that bodies inert and living are organized on two principles — the infinitely great and the infinitely little.

The most powerful telescopes will probably never reveal the most distant stars; the most far-reaching microscope will never disclose the similarly multitudinous little universes that lie all about us.

THE WAR ON AGRICULTURAL PESTS

THE STATES AND THE NATION ENGAGED IN A HAND-TO-HAND CONFLICT WITH AN INVADING ARMY OF MOTHS, INSECTS, AND DISEASES THAT HAVE COST AMERICAN FARMERS MORE THAN THREE BILLION DOLLARS — A COLOSSAL LOSS THAT IS ALSO ONE OF THE GREATEST STIMULANTS TO SCIENTIFIC AGRICULTURE

BY

E. L. D. SEYMOUR

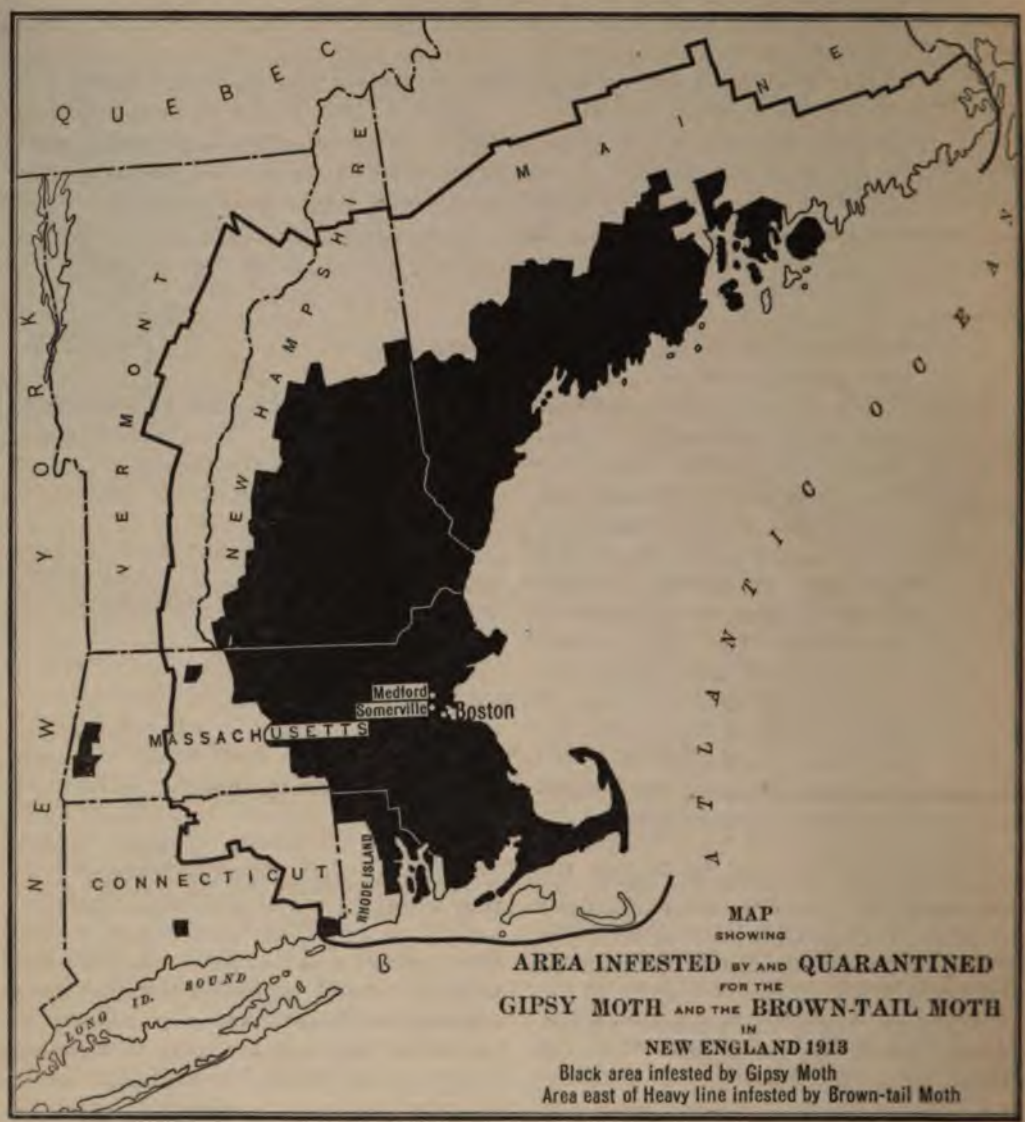
IN 1869, an entomologist named Trouvelot had in his laboratory at Medford, Mass., some recently imported eggs of a European moth that was theretofore unknown in this country. Whether, as one report affirmed, several of these were blown out the window during a summer shower, or whether, as other records testify, the eggs hatched and some of the caterpillars made a surreptitious departure, toward the end of the season the professor gave public notice that live specimens of a dangerous insect were at large, and requested the coöperation of his neighbors in recovering or destroying them.

Naturally this warning attracted but little attention. No one was particularly worried at the thought of a few moths being free to enjoy life and the matter was soon forgotten.

A dozen years or so had passed when certain trees about the town showed signs of suffering injury by some unfamiliar insect. The condition became more and more general and the injury more severe until, in 1889, shade and fruit trees throughout the neighborhood were completely despoiled of their leaves. The rapid depreciation of property values in the infested town at last stimulated its citizens to something more than indignation, and they turned to the state for suggestions and assistance in fighting the plague. So began a valiant ten-years' campaign against the now famous gipsy moth, which, through concerted, strenuous effort and the expenditure of about $1,175,000, almost exterminated the pest. But before that vital "almost" could be struck from the statement, legislators from other, moth-free districts, being unfamiliar with conditions and unduly optimistic over the success of the protective measures, combined to discontinue the annual appropriations and thereby put an end to the systematic warfare.

The respite came just in time to save the remaining insects, which, safe from attack, began immediately to multiply, spread, and resume operations, until in 1906 an even larger area than was previously affected found itself overwhelmed. In May the enlightened, contrite, and thoroughly alarmed legislature made a new appropriation of $75,000 for moth work for the rest of the year, and secured, in addition, funds and assistance from the Federal Government. The next year saw an appropriation of $225,000 and continued frantic attempts to overcome the results of those five years of rash idleness. But the local pest had already assumed the importance of a national menace and its spread throughout New England has been continuous. In 1913, the entire area shown in the map on page 94 was quarantined by the United States Department of Agriculture against the exportation of all nursery stock, Christmas trees, etc.

Thus millions of dollars and tremendous amounts of time and energy have been and are being spent by the various states and their individual tree owners. Acres of orchard and forest must be inspected, sprayed, and often, when further defence becomes impossible, destroyed. And to-day the sole rewards are the belief that the advance of the pest has been checked and that infestation of new territory can be prevented by constant watchfulness and prompt action when necessary; and the hope that the lesson of those earlier



TWO PESTS THAT HAVE BEEN ENORMOUSLY COSTLY TO NEW ENGLAND

THE FEDERAL AND STATE GOVERNMENTS HAVE SPENT MORE THAN 4 MILLION DOLLARS TO ERADICATE THESE MOTHS WHICH HAVE DESTROYED MANY MORE MILLIONS OF DOLLARS' WORTH OF ORCHARDS AND WOODLANDS

years has been learned and that neither vigilance nor generous maintenance appropriations shall be lacking until the extermination of the pest becomes an unquestionable fact.

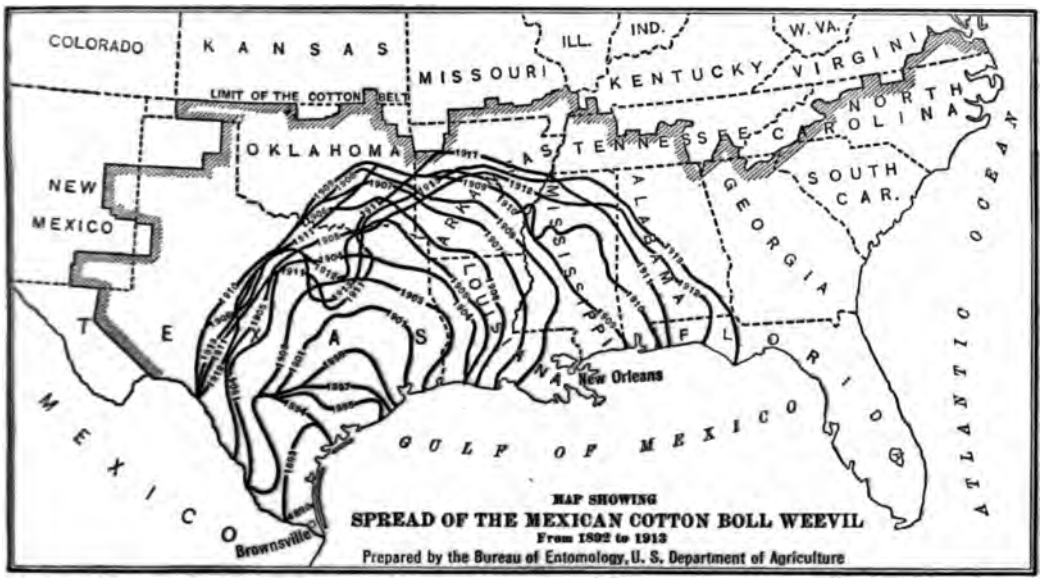
Side by side with the gipsy moth in the later days of its invasion has moved the brown-tail moth, of a different species but of similarly destructive habits and even more to be dreaded, first, because of the ability of its females to fly—a power denied to the females of the gipsy—and second, because of its stinging, poisonous down or hair, which makes the combat doubly unpleasant and difficult. Found first in Somerville, Mass., in 1897, it has spread with even greater rapidity so that its full share of the appropriations (which after its discovery were provided for both gipsy and brown-tail moth suppression work) has continually been needed.

About 1892, or while the citizens of Massachusetts were making their first stand against the gipsy moth, a new enemy ap-

peared at the extreme opposite corner of the country, causing considerable damage in the cotton crop around Brownsville, Tex. This was a small, hard, beetle-like creature of which the larvæ or grubs burrowed in and totally destroyed the value of the bolls of the infested plant. Within three years the Federal Department of Agriculture had seen fit to make a thorough investigation of its habits, to pronounce the Mexican boll weevil a dangerous pest, and to advise the government of Texas to establish a belt along its southern border in which the cultivation of cotton should be, at least temporarily, prohibited, to prevent the insects' advance. Again wise counsel fell upon deaf ears. As a result, the insect moved northward and eastward toward the centre of the cotton-growing section, reaching, in 1895, San Antonio and Wharton. Two unfavorable seasons then prevented its advance beyond the towns of Yoakum and Gonzales, but the following year was exceptionally favorable to its development and the serious reduction of the cotton crops of the state gave rise to a succession of meetings and discussions, to additional and increased Federal investigation, and, finally, to the creation of the office of state entomologist and the appropriation of a small sum with which he was to study the pest and devise a method of combatting it.

But like the rush of a swollen stream the surging wave of insects poured around all such barriers and, in 1903, entered Louisiana. With commendable promptness the newly stricken state convened an extraordinary session of its legislature, which created the Crop Pest Commission of Louisiana, with full authority to take any course that it might find to be advisable. An appropriation by Congress of $250,000, in 1905, gave new impetus to the Federal work, but, despite the increasing store of knowledge regarding the nature and habits of the weevil, no effective means for its control had been discovered, and by the end of 1907 Oklahoma, Arkansas, and Mississippi had joined the band of infested, terror-stricken commonwealths.

At last, however, Nature had dealt one blow in their behalf, for it was found that the insect could not endure cold and had reached the northern limits of its migration. And yet this was but cold comfort, for the climatic limits of the weevil were those of its sole host, the cotton plant. The season of 1909-10 was in every way dis-



THE ONWARD MARCH OF THE BOLL WEEVIL

SHOWING ITS OCTOPUS-LIKE SPREAD FROM BROWNSVILLE, TEX., ON THE MEXICAN BORDER, NORTH TO THE FROST LINE AND EAST TO GEORGIA; AND THE GRADUAL RECLAMATION OF SOME OF THE WESTERN AREAS THROUGH THE WORK OF THE PUBLIC OFFICERS AND PROGRESSIVE FARMERS

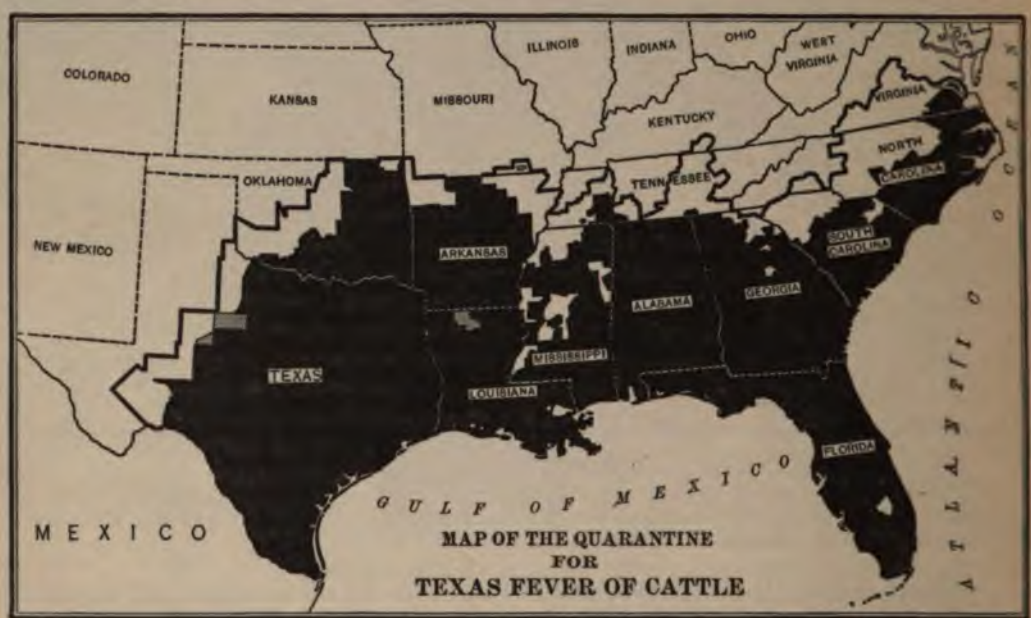
astrous for the enemy, which lost considerable territory in western Texas and Oklahoma; but it continued its eastward march into Alabama, into Florida, and right up to the borders of Georgia, having achieved the conquest of almost the entire cotton-growing section of the country. And there it stands to-day, now advancing a little, now losing ground in the face of a sudden frost or a concerted display of destructive work by the slowly awakening farmers, but probably the most harmful plant pest and the heaviest tax upon the farmers of the South.

And yet in the last two or three years the advance of the invading army has not meant a panic-stricken rout of the opposing forces, but rather a stubborn hand-to-hand struggle. A recent press bulletin from the Alabama Experiment Station expresses the intensity of the warfare, reporting that

Largely on account of the short season for their spread, the weevils' advance for this season averages only between 20 and 25 miles in this state. As usual the greatest advance occurs along the southern edge of the state. Undoubtedly, only the unexpectedly early frosts prevented the weevils' entering Georgia this year.

While the early frost has probably not exterminated weevils anywhere except possibly along the extreme edge of the weevil line, it is certain to have had a highly important effect in reducing the number of weevils to enter hibernation and will, therefore, insure a lighter infestation in the early part of the season of 1914. No steps in the cultural control of the weevil should be omitted on this account, however.

Moreover, the defending army of scientists, agricultural advisers, state officers, and progressive farmers have evolved finally a plan of attack that is not only lessening the boll weevil injury but also reorganizing and greatly improving the entire scheme and system of Southern agriculture. It is impossible here to mention and sufficiently credit the many loyal, indefatigable workers who have thrown every ounce of their energy into the fight. Yet in terms of results, the name of the late Dr. Seaman A. Knapp stands even above them all, for it was his wisdom, foresight, and toil that devised and established the new agriculture of the South, the crop rotation and systematic diversification that have not only been responsible for the cotton crops of recent years, but that are putting an end to the



REPELLING THE INVASION OF TEXAS FEVER TICK

THE BLACK LINE SHOWS THE EXTREME LIMITS TO WHICH THE INFECTION OF THE DISEASE HAS TRAVELED; THE BLACK AREAS ARE STILL UNDER QUARANTINE; THE CONSTANTLY WIDENING WHITE AREAS HAVE BEEN RECOVERED FROM THE INFECTION BY THE WORK OF THE FEDERAL AND STATE GOVERNMENTS

iling of Southern soils and creating a gricultural empire in the South.

: financial losses have not yet been ome, however. The difference in ge yields of cotton per acre in Texas, e periods 1893 to 1901 (before the l became a general pest) and 1903 to was thirty pounds of lint a year At ıt prices this meant a loss of $2.70 an not counting the value of the seed, or, ıe total cotton acreage of that one $27,000,000 a year!

t the invasion of the South has not by the boll weevil alone. Another ite far more repulsive, fully as de- ive, has long burdened the Southern r, This is the cattle or Texas fever which causes a direct loss of anywhere forty to two hundred millions of dol- :very year. This loss, and a still :r indirect tax, may be traced along ıl lines: (1) The death of native cattle Texas or tick fever which is carried by ɔarasite. (2) The death of cattle of the quarantine line following oc- ıal, accidental carriage of ticks into territory. (3) The arrested growth 'igor of every infested animal. (4) ıccompanying loss in beef and milk ction. (5) The prevention of South- ıreeders from selling or exhibiting cattle outside the quarantine area. The decreased value of Southern cattle markets. (7) The expense incurred te and Federal governments in fight- ıe tick. (8) Most serious of all, the ıental effect upon the entire agricul- f the South, and, therefore, the hind- to boll weevil suppression and to every progressive, beneficial movement. eevil problem renders diversified farm- ıd crop rotation essential; this type of ıg can succeed only if it includes to a :r or less degree the raising of live- to consume certain crops and main- :he fertility of the soil; the uncon- l cattle tick practically prevents the g of cattle, the most important type -stock in the South.

nale and a female tick hatched in may by October 15th give rise to 000,000 descendants, about half of , being females, will lay about 1,500 eggs apiece immediately or the *fol*- lowing spring. Take the cattleman's point of view: a thoroughly, although not exceptionally, infested cow may carry several hundred thousand ticks at one time and, during one season, may be infested by four such broods. Now 1,500 ticks, after having engorged themselves for three or four days, will weigh about a pound, this representing almost entirely the weight of the blood taken from the host. Thus the helpless beast may actually lose from 200 to 500 pounds of blood in a single season. Lit-

AN INVASION THAT CANNOT BE CHECKED

NO METHOD OF PREVENTION OR CURE HAS YET BEEN DISCOVERED TO STOP THE SPREAD OF THE CHESTNUT BARK DISEASE WHICH BEGAN ON LONG ISLAND AND WHICH COMPLETELY RUINS ALL THE CHESTNUT TREES IN ITS PATH

tle wonder that thousands of Southern calves never reach maturity; that the pitiful spectacle of a valuable dairy or beef animal actually starving to death in the midst of rich, nutritious pasture is not a nightmare but a terribly frequent reality.

But the history of the tick is not wholly in shadow; the tide has turned and the pest is being swept, slowly but none the less surely, off the map. Beginning in North Carolina in 1899, tick eradication progressed locally until 1906, when Congress appropriated $82,500, following this in 1908 with a grant of $150,000 for similar but more extensive work. Since then the Federal

expenditure has been $250,000 a year, and the several states most interested have contributed approximately $150,000 more.

In return there had been, up to 1911, 127 entire counties, and parts of 20 others, released from the quarantine which originally included 929 counties. Every year brings joyful messages of new territory declared tick-free, and more farmers granted new, almost unlimited opportunities. And yet, although the task of permanently ridding one animal or one herd of ticks is a simple matter of care, rotation of pastures, and conscientious dipping of the cattle, the freeing of counties and states is no mere matter of time and inevitable progress. It has been and still is, in some cases, a warfare against, not the tick itself, but the prejudice, conservatism, and ignorance of man —the farmers themselves. This twentieth century and the sovereign states of Texas, Missouri, and others, have actually beheld the dynamiting of dipping tanks by the very men in whose interests the Government built them; have beheld inspectors, quarantine officers, and veterinarians met, not with gratitude and coöperation, but with threats and loaded guns, and bodily injury!

It has been clearly demonstrated that a farmer can eradicate the tick from his herd with a cash expenditure of not more than fifty cents a head; that the average value of Southern cattle may thereby be increased at least $7 a head; that, as a result, the total valuation of the present cattle of the South would be increased $84,000,000; and that up to 1911 the expenditure of $1,000,000 by the Department of Agriculture had effected a saving of $5,000,000 a year in the disinfection of one seventh of the entire infected area.

The fourth agricultural invasion that has attained national importance, although as yet limited in extent, carries unfortunately no ray of hope. The deadly chestnut bark disease, which of late has ravaged the forests of New England, New York, Pennsylvania, and neighboring states, is still an unsolved, uncontrollable problem. Appearing on Long Island (where it was probably introduced on imported Japanese chestnut stock) previous to 1900, it was not recognized as a serious menace until 1904, and the first published account of it was made in 1906. In this instance, too, all efforts to check the spread of the pest came too late.

Westward again to the San José Valley of California and backward again to 1879, when Professor John Henry Comstock, now of Cornell University, was sent to investigate a new, minute scale insect that had appeared on a few citrus trees. The annual report of the Department of Agriculture for 1880 contains these ominous words: "From what I have seen of it, I think it is the most pernicious scale insect known in this country." Ominous words, and prophetic, too, for where, today, is the fruit grower who does not know, and the orchard which has not suffered, the attacks of the San José scale?

Imported from China on carelessly examined nursery stock, set free in a congenial climate where there were no lady beetles, which in the Orient hold it in check, the scale began a pilgrimage eastward, northward, southward, that continued until the map of its range and the map of the United States practically corresponded.

It is impossible to estimate the money loss that should be attributed to this insect. Entire orchards have succumbed to its smothering attack; shade trees, ornamental shrubs, woody plants of every description, are liable to or have already suffered infestation. Thousands upon thousands of dollars have been spent on its destruction and in preventive work, and other thousands lost in condemned nursery stock and abandoned orchards.

Yet there has been, in one sense, greater gain than loss; the advance of the scale has served as a scouring of the fruit-growing industry. Many an orchard that died or was destroyed was already diseased, weakened, unworthy of life. The preventive spraying, fumigation, and increased attention in general has held down not only the scale but many another insect enemy and disease as well, which under old-time, slipshod methods would probably have gained a foothold and added to the national loss.

This encouragement to apply scientific methods to horticulture and to agriculture is a positive benefit of these invasions, and thus it may be that eventually they will more than repay the damage they have done.

WHAT EUROPE THINKS OF US

SECOND ARTICLE

OUR ACHIEVEMENTS AND SHORTCOMINGS AS A DEMOCRACY — HIGHER EDUCATION IN THE UNITED STATES — OUR PRACTICAL RELIGION HAVE WE DEVELOPED A CIVILIZATION THAT IS ALL SUPERFICIAL AND MECHANICAL, AT THE COST OF OUR INNER LIFE?

BY

DAVID STARR JORDAN

WE OF Europe have the greatest admiration for the ardor, the spirit, the enterprise, the tenacity, the breadth of view of affairs, and the scorn for outworn conventions that are shown by America. But we meet here generally the opinion that the United States has much to improve in the direction of personal honesty, considered totally lacking among her people. (*Alsace*)

As to this, a wise observer once noted that there is a good deal of human nature in hens. There is likewise much human nature among Americans. There are individual representatives of the whole gamut of wickedness represented in the nations from which America has sprung. It does not appear, however, that the level of honesty in any one race or class in America is lower than that of the corresponding group in Europe. The level of personal as distinguished from civic morality seems in America appreciably higher.

Clean living is a kind of religion in America. Above almost all other characteristics of American life rises the high standard of personal morals. From this fact rises the motive for the practical solution of the problems of vice, misery, and crime. In further evidence of this we may note the activity displayed in education, in sanitation, in the protection of children. America has had a fortunate history. In it are met natural wealth, unity of purpose, skill in action, a high moral tone, and the spirit of perennial youth. (*Saxony*)

I am afraid that the United States are being undermined by corruption, by large trusts: in short, that the much-discussed youth of the Nation does not help it at all. The soullessness of their culture astonishes us Europeans — that have never been there. We have no sympathy for the great advertisement of humbug that so often takes on a disagreeable form. Such phenomena as "Tammany" make us thoughtful. Naturally we admire the colossal development of machinery and their restless industry.

With regard to my countrymen, their opinions are widely divergent — as is natural. But I can hardly say that there is any great widespread admiration among them. (*Finland*)

The United States has solved many problems by the sheer weight of opportunity, freedom, education, and courage. It has left unsolved many of the finer problems of democracy, notably the development of means by which the actual intelligent will of the people can be translated into governmental action.

Too often, in American politics, the voter finds among measures only a choice between evils, and among men only the option of throwing away his vote or of bestowing it with or across party lines on men in whose ability or integrity he has little confidence.

This is a problem no large nation has yet solved. The loose party organization of the United States has not met it, nor has the more rigid party control of Great Britain. The rule of cliques and factions as shown in France is equally far from embodying the wisdom of democracy. Though little can be said in favor of a system which makes its parliament a debating society of rival interests, though the Administration

with or without political support goes its own way as it pleases, government by the people, of the people, and for the people deserves such electoral machinery as shall not belie any one of these phrases. This demands more than the ballot, the party caucus, or the party primary. Democracy does not require either the boss or the demagogue in the exercise of its functions. To see that neither the one nor the other wields more power than the people willingly grant him is one of the worthy problems of statesmanship. (*France*)

It does not seem that the measures lately called progressive in America — the initiative, the referendum, the recall — go to the heart of this problem. The open primary election as now practised can be only a temporary device in the effort to make an election a true expression of the real will of the people.

In Paris we appreciate, and more or less vaguely admire, the dash, spirit, and effectiveness of American business and of American thought. But, as a whole, the American people we meet do not command our respect. A visible portion of them seems to be overfed, careless, pleasure-loving, and inconsiderate, lavish in expenditure, yet often stingy and devoid of any high purpose in life, unless it be to break somebody's record somewhere.

To all this there are many exceptions. Probably not one in five or ten of the American residents, men or women, belong to this class — but the impression of the type remains. (*France*)

The American is conceived as an intensified Englishman, with all his arrogance, but without his saving veneer of good manners. (*France*)

The American of the Paris boulevards is not the American of the national ideals at home. In so far as this criticism applies to the more typical forms of America, it has its basis in directness of thought and action. The American goes at once to the heart of the problem before him. He finds the straight line, the shortest distance between two points. He does not allow conventionality to obscure reality. This fact gives him the best manner in the world — or the worst, as one may choose to regard it.

The reproach of "dollarismus," or "dollar worship," often heard in Germany, seems to me a fiction of careless observation. It is a joy to create, to create wealth among other results of creative energy. This joy appeals to the active man even if he be not trained for higher pleasures. To make money is not in itself unworthy, and money may be converted into culture, science, or human welfare. With Americans as a whole money-making is not an end in itself. It is a game, and one of a higher order than golf or whist or pheasant-shooting.

That wealth is not the final end sought is shown in the generosity with which many Americans have devoted it to live purposes for education, for research, for social betterment. Public gifts in Europe are more rare and usually look backward toward preservation of memories rather than forward toward accomplishment.

This is still further shown by the fact that no great effort is made in America to build up family wealth by devices to secure inheritance. To the average American, inherited wealth, to the making of which the holder has contributed nothing, is "tainted money." He counts only that which he has helped to capture or to create. A still further fact of the same kind is the aversion of the typical American to make money a consideration in marriage. The prevalence of marriage for love as against the marriage of convenience constitutes one of the great eugenic advantages of American society. Love-marriages tend to increase and to perpetuate the two best products of human evolution, romantic love and personal initiative. (*France*)

BETTER KNOWN, BETTER LIKED

I shall jot down a few personal notes, as I believe that my experience is fairly representative of my class and generation. When we were in the high schools, we knew but two things for certain about the United States: that people would flee to the Great Republic over the ocean when their own country grew too hot for them; and that uncles would return from the same with fabulous wealth. Both of these items we had picked up in the course of our desultory

ng. "The Uncle from America" is I believe, a "god from the machine" e French stage.

:t as we were growing into conscious ood, the Spanish War broke out, and ica became very real to us. There ittle genuine sympathy for priest-rid-Spain; but her very weakness, the dy of her decadence, appealed to us, here was a certain amount of latent in" and European patriotism, which d us to side, almost unanimously and ervedly, against America. Ameri-on the other hand, spoke in no mea-terms of our misfortunes and failings. e Dreyfus case had the result of con-ıg many of us to socialistic ideas. we saw in America mainly the great cratic nation, the worshipper of the hty dollar. Aggressive imperialism, ited capitalism: that is what the d States represented in our eyes.

en I spent several years in England was deeply influenced by English ht. But it so happened that for my sh friends, also, America was a power rkness, a leveling, vulgarizing agency, atening, irresistible barbarism.

far I had met no real American, and no American literature except trans-s of Cooper and Poe. When at the ıal School in Paris, I was repeatedly ed to pilot foreign visitors through the ings. Thus I became acquainted a number of American scholars. And in love with their lack of affectation, cordiality, their boyish receptiveness nthusiasm. Determined efforts were made to break down the wall of prej-s between the two Republics, and I ded with intense interest most of ssor Barrett Wendell's lectures at orbonne. Now I am more deeply nced than ever of the kinship be-ı France and America. The lesson of :h history is equivocal. Many of heories may seem erroneous, many of fforts misdirected. But America is est justification of what France has preaching and striving for. So I find without forgetting my national tradi-without renouncing my spiritual ance to France, I can take the keenest st in American affairs and the most genuine pride and pleasure in American achievements. (*France*)

LACKING IN TRUE CULTURE

In this country we make a distinction between "civilization" and "culture." When one speaks of "civilization" one thinks of all the many beautiful things in which man has accomplished so much in the last hundred years (railroads, airships, skyscrapers, wireless telegraphy, etc.). All these discoveries have nothing to do with "culture" in its true sense. A highly developed civilization may be poor in the means of culture — that is to say, poor in those spiritual instruments which make up a richly cultivated society (philosophy, art, religion). We Germans of to-day are proud of the immense revolution which the nineteenth century brought to us also — the true child of the poets and thinkers of the latter eighteenth century. Our ascending civilization is often in the case of the apprentice-magician (in Goethe's well known poem) who is no longer able to dismiss the spirits which he has called up. We begin to realize ever more pressingly the truth of the old biblical saying: "What shall it profit a man if he shall gain the whole world and lose his own soul?"

In this country, when one thinks of the dangers that civilization brings to the culture of our people, we are liable to speak of "Americanismus." So our language has already found a special word for the thought which we frequently have about America. We have lost the youthful optimism which the American (so at least we think) still possesses. We no longer triumph so merrily as we used to over our civilization, for we think how the problem of culture shows itself more difficult from day to day. This developing civilization complicates the social clockwork; the individual becomes more and more like a machine, and there enters what Alfred Weber calls "the mechanization of life."

And so I would like to sum up in this way what is the judgment of many Germans on America: America has brought us a great deal of civilization; but we are still waiting for the American culture which will quicken and stimulate the spiritual life of Europe. (Baden)

It is natural that a German who has never seen America should judge the land and people by what appeals to him and by the relation of this to his own inner and outer forms of culture.

THE MENACE OF OUR SPEED MANIA

To Germany in later years America has become most conspicuous through engineering and machinery and the aids to industrial work. All this tends to raise the spirit of our labor, and to build up a healthy and active public life. But we may ask, "Does it increase our inner work as well?" I hold with Ruskin that no change in movement of a hundred miles an hour, no weaving of a hundred yards a minute, makes us of itself a bit stronger, more clever, or more happy. The fool may continuously kill off space and time, the wise man lengthens them that he may translate them into life.

I think that I agree with some hundred thousands of my countrymen that the Americanizing of our life is, in this sense, of no unmeasured advantage. (*Bavaria*)

In my youth, it was always pointed out to me that we learned from America respect for every honorable work, and esteem for the worth of the individual worker. This is right.

In later times we have had another influence from America, the respect, not to say worship, of wealth for its power and its glitter. Old aristocratic families in Germany complain of this change. It has driven them from the court life of Berlin because they cannot compete with rivals transplanted from America.

To me, personally, the freedom of life and the absence of conventionality in America has always seemed magnificent. The common man, in his education, is not prevented from doing the right thing, and from following the lead of enlightened men. With us the burden of the centuries clogs the groundwork of education, preventing the adaptations which circumstances demand. In the direction of education, we have, therefore, much to learn from America. Our industrial schools especially have gained greatly from American experience. (*Bavaria*)

In literature, above all the leaders in idealism, Emerson, Thoreau, and their successors have had a deep influence on German thought. Emerson's essays in translation belong now to the solid framework of German literature. In later years Thoreau has been more and more appreciated. For originality and artistic effect, the fame of Whitman has risen in increasing volume. To the thoughtful lovers of poetry, the delicate sentiment of Longfellow has made a special appeal. (*Bavaria*)

To the average student in a German university "The Union" is a large country where everybody does more or less what he wants to do. It is the land of unlimited possibilities. The chief thing done there is the making of money, the hunt for the dollar.

The population of America contains very bad elements; all the emigrants from our country (and other countries in Europe) who did not get on very well, or who committed a crime or who had escaped the patriotic duty of serving in the army — all these went to the States. The population must, therefore, be very rotten.

Reading newspapers from America, we hear of little save crimes, railroad accidents, and exciting national campaigns. Besides this, we know that people in the States are very rich and that nearly all of them become so. We hear everywhere of "my rich relative in America," or "my rich uncle who died in America," if a man spends money freely.

GERMANY BETTER THAN AMERICA

The police must be very bad. Skyscrapers must be very dangerous in case of fire or earthquake. [The Berlin police permit no house of more than six floors.] Everything is safer in Germany, more normal and much better. We have an old tradition that "Germany is the land of the thinkers and the poets." We have in Germany everything well-ordered. The military training of the people gives them order and organization. We have, therefore, fewer criminals, fewer accidents, no "American bribery," no corruption of judges or public officers.

Moreover, in Germany we have more culture, more idealism. Our science stands at the apex of the world. Our philosophy,

etry, our music, our theatre, our our railroads, our order. Thus it Germany above all, above all in the

rica, the land without traditions, d of millionaires, the land of trusts, go, cake-walks, baseball, Pullman swell hotels for parvenus, is a wholly listic land without idealism, and patriotism in the German sense word.

German students would admit that eign university is better or could be than the universities of Germany, ey find sometimes that American s think the same of their own ities.

nyself, I cannot decide this ques-

The main reason why German stu- s a whole think lightly of American ities is their lack of knowledge of nd in general of the English lan- lso. There are hardly more than 5 t. of the whole number who can English sentence. Young men in r commerce learn English, but the ity students do not.

her reason for lack of appreciation rican institutions is this: German s visit foreign countries very little. vernment does not allow them to n foreign lands except in special d for a very short time. A student nust not spend more than one year ersities like Lausanne, Grenoble, Oxford, Zurich, or Bern. If he nger than one or two terms, or if to other foreign universities, his not considered. This means loss of ailure to be admitted to examina- nd matters which might spoil his s a jurist.

les this, German students are largely compared with students in other es. Their average yearly expendi- bout $250; seven months are spent university and five months in va- at home.

the relatively rich can go to foreign es. Besides this, there is a great l spirit, a so-called patriotism, the students which leads them to at there is nothing in the world bet- the institutions of the fatherland.

Then the majority of German students must spend one year in the army. By this they lose much time and money. They are prevented from seeing foreign lands and from getting into touch with other people. In the judgment of the student who writes this, the narrow militaristic, thus encouraged, is "poisoned thinking."

A minority of 10 to 20 per cent. of German students take the trouble to think sanely regarding institutions in other countries. These form such clubs as the "Free German Students," the "Cosmopolitan Clubs," and the "Students' Abstinence Association." The majority of the 3,000 woman students belong to this general class, while the drinking and duelling men of the "Corps" stand at the other extreme.

WHERE GERMANY CAN LEARN FROM US

Those who really know something of America and of American methods admire the nation very much. The spirit of democracy, the valuation of men, the freedom from prejudices in the States, are elements our modern students are trying to introduce into German universities.

We know and gladly admit that many things are better in the universities of the States, but we think that in one regard we are ahead: the academic freedom, the scientific spirit and impulse to investigation, the methods of deep thinking and solidity of basis.

The scientific literature of Germany is so much greater than that of other countries that there must be a reason for it, despite the excessive use of beer, spirits, and tobacco as compared to the States. This academic freedom is a wonderful thing. Its abuse may be bad, but if rightly used it is a most important element in academic life. Let me try to explain. This clearly refers to freedom of study, the elective system as compared with prescribed courses. But the two go together in Germany as well as in advanced institutions in the States. (D. S. J.)] For example, in the study of economics in Germany, I am not bound to any regular or prescribed course. It remains for me to decide what I shall do or read or hear. If I am not interested in a special matter, I may leave it aside. I need not even hear a lecture on a subject

which does not interest me. I may concentrate on what I prefer. I do not waste time or energy on what I do not like.

University training in America is more like school training. The life in the college has great advantages. So have regular courses and regular examinations, but from the point of view of a German I think that it has one great disadvantage, the leveling downward of thought and spirit.

AMERICAN STUDENTS MORE FIT FOR LIFE

Academic freedom (in American phrase, "the elective system") develops, when rightly adjusted, freedom of learning, of knowing, and doing, and with it the highest development of the individual spirit in its best possibilities, without the obstruction of examinations or other nominal requirements, and free from the perversions of traditional notions of culture. It is the man to be trained, not a system to be carried out. Because of the freedom of the individual in learning and in investigations the German student may advance most rapidly, and this fact reacts on the whole people. Unfortunately, however, it happens that the university man becomes rich in theoretical knowledge which he is unable to translate into action, and is thereby "unfit for life." For this reason, there is an enormous number of unemployed scholars waiting indefinitely for a profession or for a place in the service of the State. The "academic proletariat" is a very serious thing in Germany. It is unknown in the States.

The American university is the better in these regards. It has individuality in itself, which the German university has not. Its individuality exists in the professor himself. In America, men are rated in classes, whereas in Germany the teacher and the student may come into direct relation, not possible where the student merely "takes up the subject."

We who have seen something of American universities also admire them very much. We are not afraid of competition with them and we realize that they tend to higher and higher scientific and idealistic standards. But to-day, despite all the millions given to them, they have not yet reached or overtaken Germany.

But they do teach us how to educate men, how to fit them for life, how to cultivate body and spirit, how to lead them to love their university, and how to bring into existence a close bond between the university and the students, a thing unknown in Germany. A German student would as soon think of "loving" the Post Office as he would to express affection for his university.

But with all this we have our academic freedom, the freedom to teach and to learn, an element of the greatest promise in the world's progress. (*Baden*)

In this comparative view of the universities we may notice:

(1) The effect of "the protective tariff" on culture in narrowing the international horizon of the German student.

(2) The plea for the elective system which has wrought such changes for the better in the advancing American universities. A prescribed course is like a ready-made suit of clothing. It "levels down" the attire of him who uses it. Freedom of choice of effort is a requisite of all high accomplishment.

(3) The German university is essentially a group of professional schools. The first two years of the American university are, in Germany, given in the gymnasium or the *realschule*, institutions as rigid as the university is free. The American university lets freedom into this transition period, an arrangement which has advantages as well as disadvantages. It makes the university as a whole more youthful, more elementary, more lovable, less scientific, and less serious. The advanced student in America as in Germany has all the freedom there is. The professor may be less fortunate, but in both nations the professor in the long run makes his own environment, "spins his own cocoon."

THE "PURITAN CONSCIENCE"

The fact of the leadership in American philosophy of Edwards, Emerson, and James is fully developed in a printed letter of appreciation sent to his American friends by Professor Rudolf Eucken, of Jena.

The philosophic thought of America is an outgrowth of American life and experience. It has been largely controlled or at

least typified by three great American thinkers — Edwards, Emerson, and James.

The set religious determinism of Jonathan Edwards is the quality of the "Puritan conscience," the most lasting inheritance of the American people from their colonial ancestors. The theory of predestination with its theological derivatives has largely passed away, but the serious view of life remains. The "conduct of life" is still the most important business of every real American. Every question in Society, in public or in private life, is to him fundamentally a question of morals. There is no solution of such a question until it is settled right. The moral issue was at the bottom of the slavery controversy, the state-rights disputes, the problem of the protective tariff, the regulation of the liquor traffic, and equal suffrage and other matters involving equality between women and men. The labor problems and the problems of immigration are still searching for the moral issue which will finally determine their adjustment. Whatever the apparent levity of the American, the most humorous of men is also the most serious when the time comes for the final decision.

Emerson gives the expression of the attitude of the American toward the universe, an attitude of free and joyous participation in its affairs. To Emerson "America means opportunity," the opportunity for the individual man to find himself in his work, and for the work that needs doing to find itself in the man. Emerson's mind was a searchlight on the conduct of life, in which the individual man must be finally responsible for his own position. Though, as in the Arab proverb, "Allah has bound each man's fate about his neck," as the philosophy of Edwards taught, yet this fate is capable of realization in a thousand ways, and it is the fine art of living that, among these, each man should make his own selection.

OUR PRACTICAL RELIGION

William James applied to the affairs of life the tests of truth to which the practical man must appeal. That is true which hangs together, that which can be made to work, that which is solid enough to become a basis for accomplishments. The ultimate end of sensation and thought is action. The ultimate end of knowledge is power. The test of pragmatism involves no break with religion, but a turning toward primal realities and the First Cause behind them all. Whatever in religion, of ceremony, sentiment, or dogma, has no relation to the conduct of life, and has no ascertainable vital purpose, is an excrescence on religion. It is the work of the young Republic in this regard to cast off the overgrowths of an unpractical and unreal medievalism. To test our opinions anew by their effects on human life is again a duty enforced on us by the "Puritan conscience." (*Saxe-Weimar*)

To these three great names, the writer would add another equally typical in its way. The place of Benjamin Franklin in science and in politics, his disregard for the conventional and the purposeless, and his feeling for the realities in nature and in humanity raise him to the rank of a typical philosopher of American life.

Free from all bonds of the compulsion of the State, the religion of America has room for symmetrical development.

The American's interest in religion centres on the realities of life. To all utility and activity he has a religious background. It converges not on himself nor on an ideal or abstract Church, but on practical work for human betterment. "The value of religion is found in terms of social service."

Strong men are engaged in America in every phase of religious effort. The characteristic phase of American thought is an idealistic optimism that is proper to a confident young nation. Effort and love for work are evident in overflowing fulness. The land is full of strong power which will carry it further and further to decisive achievement. (*Saxe-Weimar*)

The Americans see power in education. They are full of youthful pride in all they create or possess. But they plan well. They wish the unfolding and rounding out of the individuality of their great cities; they wish their children to be in harmony with the culture of the Nation and of the world. They wish, practical people that they are, to avoid one-sidedness in their great Nation. They stretch out their arms to the spiritual with a full welcome. (*Hamburg-Rheinland*)

THE MANUFACTURER OF TO-MORROW

THE POSSIBILITIES OF BUSINESS CONQUEST THAT LIE IN THE MAKING OF ONE STANDARDIZED PRODUCT IN ENORMOUS QUANTITIES FOR ALL THE MARKETS OF THE WORLD

BY

EDWARD A. RUMELY

[*This is the second of two articles on the work of Mr. Henry Ford, whose colossal business in automobiles may point the way to a revolution in the theory and methods of manufacture.*— THE EDITORS]

THE Ford Motor Company manufactures only one model of automobile. Its plant has been designed and equipped throughout for the specific purpose of manufacturing the parts of this particular car. Excepting for minor refinements, such as changes in the quality of metal, slight alterations in the shape of a part, or other simplifications, there has been no change in the present Model "T" car during the last five years. At the end of last season, October 1, 1913, there were 350,000 Model T's in service, and the manufacturing programme of the company for this year will add approximately 250,000 more. Cars of identically the same model are produced at the Ford factory in Windsor, Canada, for the Canadian trade and for some foreign markets, and at Liverpool for the British territory.

This rigid adherence to a single type of car so soon after the development period in a new industry is unique, and is due largely to the insight and character of Mr. Henry Ford himself. From all sides have come suggestions and inducements to change. From engineers and the experimental department of his own organization, from interested friends, and especially from the sales department, has flowed a constant flood of suggestions for changes. With the drafting room adjoining his own private office, Mr. Ford has been able to keep himself close to the design of the car; in fact, he regards the supervision of the design as his principal work, exactly as he did in the days before a vast business had been built around the Model T car. He sees more clearly than other manufacturers that every part in the design, no matter how small, entails great consequences to the business. The tiniest casting must have special machines and a special department for itself; it adds cost, necessitates reserve stocks in every general agency and in the bins of many thousands of local agents; it must be listed in the repair catalogue, and requires time studies and special processes for its production. Hence, he attacks and succeeds in solving most of the problems of the business by closely regulating the one design of the car upon which the whole business is built.

Where other manufacturers announce a new model of car for every year and succeed in making a strong selling argument of the improvements and alterations that are embodied in each succeeding year's output, the Ford Company reverses ground completely and announces to its agents that the Ford business is profitable and desirable because no agent need trouble himself about changes in the style of car. There will be no new style of cars and no cars that are out of date, because the Ford car is the same as it has been in the past five years and "will continue to be the same for many years to come."

A sales department head recently suggested to Mr. Ford that some of the grace and beauty that has been evolved in other cars in recent years might be added to make the Model T car more pleasing; to which

Ford replied: "I presume when people hoop skirts everywhere, they looked l to them. If you will wait just a few s, we will have a million Model T's se in this country, and you will have to look at on every street corner; and , it, also, will look beautiful to you."

his temptation to change for superficial ons he regards as the greatest evil and ne source of enormous waste in manu- ure. While visiting for a second time engine plant of a large manufacturing ern, he noticed three styles of engines, re a year before he had seen one. He tly took the arm of the plant manager said: "One type last year, three this , nine next year, and I presume twenty- n different styles before long. If I had ned to salesmen I would be making different cars. You notice I am mak- only one, and I will make that until ave manufactured 365 *thousand*. We possibly change it then, but if we do, a very little."

he possibility of selling 10,000 addi- al cars, if the Model T chassis were pped with a more expensive body, was ted out to Mr. Ford with a request he arrange for such a special body in r to secure this six or seven million rs of business. He refused, much to disappointment of the interested sales- . When asked whether he was not inced that that number of additional could be sold, he said: "Most cer- y they could be; but you see only the d 10,000 cars that we can sell by chang- If we stick to one model, we can e that still cheaper and more quickly we can cut the price another $50; price reduction will sell at least 50,000 tional cars, and we shall have more ness and still have only one thing to k of." Another salesman inquired for mber of customers whether they might have a different colored car. "You sell them any color of car they prefer ided they choose the exact shade of k that we are using at the home plant is time."

round this cardinal fact of having only gle model to produce and of producing in enormous quantities, the Ford busi- has been built.

All manufacturers and economic thinkers have recognized, since the days of Adam Smith, that production in quantities leads to a reduction of cost. The old craftsman produced articles as single units. From hour to hour, sometimes from minute to minute, he changed his work, performing from ten to one hundred different operations in finishing his product. He was superseded during the last one hundred years by the steam-driven factory, which undertook to make different things in job lots of from one hundred to one thousand duplicate parts. Such a factory was equipped with a variety of machine tools, on which work was specialized and every man delegated to make some part of the whole. There were various classes of machine tools, such as lathes, planers, boring machines, and shapers; on any one of these tools a wide variety of work could be performed, and when a particular job lot of 100 pieces was finished, the machine could be reset and other parts made upon that machine. Plant managers, everywhere, recognized the advantage of running a product through a factory in large lots and sought to make their job orders in the largest possible units.

A NEW TYPE OF MANUFACTURING

The Ford Motor Company recognized the possibility of, and consciously entered upon, a third stage of manufacture: that of production by hundreds of thousands. They no longer have standard machine tools that produce a particular part for a few days or few weeks, but their quantities are so large that one or more tools can be kept busy on each particular operation throughout the whole year. Instead of using a standard tool that is fairly well adapted to a variety of work, they build a special tool, often at an outlay of $20,000 or $30,000 for a single machine, to complete one operation on a particular part of the car. Such highly specialized machine tools are enormously more effective at the particular work for which they were designed than are standard tools that are built to do a wide variety of operations.

Absolute standardization upon one product brings innumerable other advantages in every department of a business. Every

one of the principles embodied in the Ford business is operative to a slight or moderate extent in any well managed larger industrial enterprise. The Ford Company is unique, however, not because of anything radically new, but because it has taken these generally accepted principles and carried them resolutely through to their final consequences, after clearing the way for their application by adherence to a single type of car through a long period of years. The final result, however, is so different from ordinary manufacture that it must be classed as a distinctly new achievement, foreshadowing the type of industry that is likely to prevail in the future, when we have taken full advantage of the unity of market that has been created by modern world-wide transportation and inter-communication.

AUTOMOBILES FOR THE MULTITUDE

Mr. Ford early foresaw that, though fifteen or twenty men in a thousand might be able to afford a car that cost $2,000 or more, the automobile was destined to become a thing of service for the multitude, and that the greatest opportunity of the business lay in the light, cheap car. Therefore, in his design, he has sought to accomplish his ends with the least expenditure of materials and energy. From the original car, which was already simpler than other early models that were put out, piece by piece was eliminated during the first years.

The second year that the Model T was on the market, a driver was sent with a stock car to make the run over the Rockies to San Francisco and return within the shortest possible time. On the day when he returned, his car, covered with dust, mud, and oil, and somewhat battered from the rough trip, was brought to the home office for inspection. Quickly Mr. Ford noticed the absence of three small bolts in one side of the frame. He inserted a finger into one of the holes and saw that it was rusty. Then he ascertained from the driver that the bolts had been lost on the westward trip, between Denver and the Rockies. One of the factory superintendents who was standing near procured bolts and was replacing the three that had been lost, while Mr. Ford, whose secretary had brought for him at his request the master blue prints from the drafting room, took his pencil and eliminated the three bolts on each side from the specifications. As the factory superintendent looked up, Mr. Ford remarked:

"If we make 40,000 cars next year, there is saving of one fourth of a million bolts. I'll wager you never made that much money in three minutes in the shop. It is evident that if a car can go over the Rockies and back without these bolts, they are not needed there."

"USELESS THINGS RATTLE"

A member of the advertising staff pointed out that the appearance of the car from the rear could be greatly improved by the extension of a sheet-iron wing that would cost only a dollar, and that would cover a spring that seemed to him unsightly.

"What is that to do?" asked Mr. Ford.

"Why, it will greatly improve the appearance of the car."

"First, we can make that for forty cents, instead of a dollar; but on 300,000 cars that is $120,000. What is it you want to do with this money now?" again asked Mr. Ford.

"Add greatly to the appearance and selling qualities."

"But I mean what real help will it be to make the car run better or carry its load?"

The salesman was still trying to explain when Mr. Ford ended the interview by saying, "I'll tell you what any piece that isn't absolutely necessary will do — rattle!"

A prominent consulting engineer once spent a day visiting with Mr. Ford to discuss certain engineering problems. He noticed that, during every spare moment of the morning, Mr. Ford had taken from his pocket a radiator cap and was apparently engaged in making some calculation regarding this part. On inquiry as to what Mr. Ford was trying to accomplish, he learned that the part was of brass and cost half a cent too much to build. He suggested it be threaded in a slightly different way to save some cost, to which Mr. Ford replied: "Yes, that would be cheaper, but whenever the water boiled it would get hot and bind." To several other sug-

ions that he ventured, Mr. Ford im-
iately pointed out some difficulty,
reupon he realized that Mr. Ford had
ied the problems involved far beyond
suggestions he might be able to make.
ing the afternoon he again found Mr.
l turning his attention to this same
ll part, devoting several hours to its
ideration. That evening, he re-
ked, "I cannot understand how this
ll part, the size of a half dollar and
ing two or three cents at the most, can
'orth so much of your time. It is only
ırth or half a cent that you can save in
piece."

Yes, that is true; but I am not thinking
ıe radiator cap. We shall need one on
of 185,000 cars this year, besides
oo for repairs. That makes 210,000
this year. We will make at least 50
cent. more next year, which is half a
on in the next two years. A half
will mean a saving of $2,500, and when
et it settled, it will be right for the next
ıty years. The number of parts in a
l car is small and each part has received
receives constantly this same minute
ntion of the best talent that we have
ıe organization."

$5,000,000 FOR AN IMPROVEMENT

ith increased production the expendi-
that becomes possible and profitable
engineering work increases almost in
netrical ratio.

ıus, when an electrical problem arose
ıe Ford car, that is as yet unsolved for
ars, the Ford Company could make an
to one of the greatest electrical experts
e world, which at $5 per car on the next
years' output amounted to the prom-
f more than $5,000,000 for the solu-
of a single minor problem, though add-
but a trifle to the cost of each car.
ne light weight of the car is important
ıany ways. It reduces the quantities
aterials that have to be purchased out-
at a fixed market price. Though to
e a small amount of metal serviceable
require a heavier factory expense that
st offsets the saving in material, as the
ıtities increase this factory expense per
decreases and lowers the cost. All
s of a car have to be handled thousands
of times, while passing through a factory. To have lightened the car from 2,000 to 1,400 pounds means a saving of from 35 per cent. to 50 per cent. in the human energy that is required for this work of handling within the factory. Lighter weight reduces the transportation charges, and thereby broadens the market into which the car can profitably be shipped. At one time, in order to achieve a reduction of ten pounds in weight, Mr. Ford accepted an increase of $5 in the cost of every car, knowing that in time this excess could be partially eliminated. When the company first undertook to substitute aluminum for iron, it found, on entering the market, that its requirements would exceed the world's available supply, and it had to delay for a year the adoption of aluminum for certain larger parts. At the present time, ten tons of aluminum are melted daily.

AN EXTRAORDINARY FOUNDRY

Specialization and complete adaptation to one kind of work, which is the essence of the Ford plant, become evident in the foundry. Materials are not handled there as they are handled in the ordinary foundry. Parts are not picked up and set down upon the floor; the sand is not shoveled by hand; men do not stoop, lowering their body weight and raising it as they lift a small quantity of material. Sand is cut and mixed by machinery, and lifted overhead by elevators. Over the bench of every molder is a chute with a door that he can open by a movement of his hand. Sand drops into the mold, packing itself by the force of its own fall. A molder works continuously on half of the flask; his neighbor, close to him, has the other half; a third man is at hand to place the cores. Their molding benches are arranged on two sides of an oval-shaped track around which runs a continuous chain. Small platforms are suspended from this chain, at about knee height above the ground. Each finished mold is placed on the platform as it moves by. At one end a man is engaged continuously in pouring these molds, as they pass him, from a ladle that is suspended on a parallel track overhead, so that no human energy is required to lift the ladle.

Every morning the moving platforms are

numbered; as the result of years of experience, the foreman knows exactly how many molds of a particular kind a workman can finish in a day. His pattern symbol is accordingly placed on a corresponding number of moving platforms, and he is expected to place a finished mold upon each platform that bears his number, as it passes him in its continuous rhythm. There is no need for piece work or for a premium system. The man at that particular job is simply expected to finish a mold every time his number comes by, and any failure on his part to keep up to the standard quantity becomes evident to every man in the gang and to the foreman as well. The pauses that will give just the necessary rest period for the highest efficiency have been included in the calculations. Piece work, premium systems, and other devices to supervise production, with expensive clerks and red tape, are superfluous. The molder's work has been predetermined; he must simply fill his place — be a link in the ever moving chain.

Each part in the Ford car has its own predetermined path through the machine shop. Years of experience and special study have been devoted to making the path for each particular part as short as possible, thereby eliminating every bit of waste motion. The machines that will do work upon the part are arranged around this path in the proper sequence. In an ordinary shop, with standard tools, where a large number of different parts are brought to the same machine, much spare space must be allowed around each tool to give room to bulkier parts that occasionally come, and for the storage of different jobs.

SPECIALIZED MACHINES

This is unnecessary in the Ford plant, where each machine tool handles only one part and where the parts are in continuous motion to the next tool. The machines have been brought closely together, within a few feet of one another, so that the men at work stand almost elbow to elbow, like a line of soldiers. The part as it is finished by one man is picked up by the next machine worker, and unproductive labor and the cost of trucking are largely eliminated.

Almost every large factory has some special tools for 5 or 10 per cent. of its work, but the Ford Company, because it produces enormous quantities of the same thing through a period of many years, has been able to build jigs, dies, and special machine tools for 95 per cent. of all its work. Having simplified the tools so that only one kind of work is done, it is possible to put in stop locks and gauges that make it unnecessary for the workman to caliper or otherwise measure his operations. A machine that is built to do only one piece can easily be made automatically to set the limits for that piece. The task of the workman has been reduced to a simple process of attaching the material and removing it, or of moving a lever from one stop to another; thus the skill of the highest grade machinist is automatically obtained. The parts are true duplicates of one another because the machine cannot make them otherwise. The extreme simplicity of the problem has enabled such an arrangement of the levers as to fit in most naturally with the arm movements of the workers. Raw laborers can learn quickly to operate most of the machine tools at a fair rate of speed.

For the work on some of the more complicated parts, such as, for example, the cylinders, very large and expensive machine tools have been designed. On such a tool, the castings are bolted into place quickly on the base plate, which is so arranged that the casting can go only into one position and that exactly the right one. Milling cutters that have been permanently spaced to within one thousandth of an inch of the proper distance of each other face both sides of long rows of such cylinder castings with absolute exactness, and do in twenty minutes what, under the old standard planer such as is used for a variety of work in an ordinary machine shop, would have taken several days to finish.

For the resurfacing of the cylinder head, a very delicate operation in which an absolutely smooth and water-tight joint must be built, a special machine has been constructed on which three rows of five castings each are placed on top and one on each side, making a total of twenty-five castings that are surfaced at every stroke of the bed on this machine. With this special ma-

, the task that formerly required a y skilled machinist, working with the est care, has been reduced to a simple ss of attaching the castings by tight- ; two bolts.

PAINTING A MILLION WHEELS

the wheel department, more than a n wheels are painted and handled ' year. They are dipped into paint lried by centrifugal machines. Every ıtion is standardized to this one size heel. The wheels roll on a slightly ıed rail system, by gravity, from place ıce.

cause the parts are absolutely uniform, vork of assembling, which ordinarily res filing and fitting by mechanics, easy process. Every joint is of ex- the right size, every hole in identi- the right place. Another manufactur- n being shown through the plant by Ford, remarked: "But this space of a ıundred square feet certainly cannot ıe whole of your testing room, Mr. ?"

low long do you think we test motors Any motor that does not show itself ct in two minutes is rejected. When I ou engine builders advertise in your ogues that you test your motors for -eight hours, I know that you haven't deal of manufacture before you. Get fect model, duplicate every part of it utely, and you won't need to test. ng is a process of finding out how im- ctly you have done your work. Some oon we hope to eliminate it altogether this plant."

having only one type of car in the ry, the handling of spare parts and ge problems are enormously simpli- After a careful study it was found the parts of the Ford car could be ɔed best into conveniently handled ages of fifty or multiples of fifty. All for finished parts are arranged with ıes or holes to take fifty or multiples 'ty. All outside manufacturers who upplies to the Ford Company are re- d to abandon the customary packing e dozen or gross and to ship to the Ford in original packages of fifty or its ıples. Counting consumes a great deal of time in almost every stockroom and, when delegated to such men as ordinarily handle these parts, is subject to great inaccuracy. By making fifty the unit the problem is reduced so that it can be carried on fingers and toes — a primitive stage that even the untrained mind can master easily.

"USE IT OR 'SCRAP' IT"

One day a new storekeeper, with modern ideas about card indexes and cross indexes showing the location of particular parts, was introduced, and soon arranged a long series of bins into which parts were stored. Mr. Ford happened to pass through the factory after several of the bins had been constructed.

"What are these for?" he asked.

"To store parts we do not need at present."

"What parts?"

"Why, such parts as we shall not require for several months."

"We are making only one thing in this plant and anything we can't use tomorrow on the assembly floor we can't use at all. Throw them on the scrap heap, and tear out those bins. Space is too valuable to be used in that way."

The Ford shop has been built so that material can flow in carefully predetermined channels from the foundry to the loading platform. The current must be continuous and fast; interruption and accumulation at any point costs money. Last summer, when the output of the plant increased toward 1,000 cars a day, it appeared that the elevators, although working constantly, could not lower cars as fast as they should. Space within the plant was too valuable to be taken for additional elevators and, instead, an inclined plane was built, reaching out of the factory. From this incline a finished car descends every thirty seconds.

A STUPENDOUS BUYER

The purchasing department of the Ford Company benefits greatly by the adherence to a single model of car. It has but few things to buy and these in enormous quantities — this year, 150,000 tons of vanadium steel, 1,200,000 wheels, 1,200,000 tires, 1,500,000 lamps, all of one style. The con-

sumption of the Ford Company is the biggest single element in the rubber market, and in the markets for vanadium steel and aluminum; and this tremendous influence has its direct effect upon buying prices. To make a single article like a lamp or carbureter for the Ford car is enough to keep a moderate sized plant busy, and in that plant the uniformity of the product leads to the same advantages that have accrued to the Ford business itself. In addition the Ford business is continuous and pays spot cash. Little wonder that the company has achieved within a few years the reputation of being the closest buyer in the Middle West.

THE PYRAMID OF PRICE

The price policy has been an important element in the Ford development. He has frequently surprised the public and his own agents by further reductions in the price of his car. Certain bankers once visited him to point out the danger of over-production and the possibility of a collapse in the automobile business. "We must not kill the goose that lays the golden egg," they said. "What would you do if you could not sell the next year's output?"

"I would cut the price another $50."

"But you are already selling them so cheap. You could not do that and make any money."

"You leave that to me," said Mr. Ford.

He then explained that the market was like a pyramid, with a sharp point at the top and a very broad base below, divided into a great many layers. "If there was only one automobile in the world and that cost a million dollars, I presume there would be some fool to buy it. If, on the other hand, a car could be produced for $50 with an annual upkeep of $10, millions of workers, wage-earners and mechanical men, with the others, would want cars of their own. The breadth of the market depends on the degree to which one can approach that $50 price."

Once Mr. Ford lowered the selling price of his car to less than the actual cost of production because he knew that the increased sales would enable him to reduce his factory costs and recoup at a subsequent date the initial losses of such a policy. His theory has been: A good car at a low price, a broad market; as the result of quantity sales, lower manufacturing costs; then, still lower prices and still broader market and, in consequence, still lower manufacturing costs.

A NEW ERA IN MANUFACTURE

More than 75,000 Ford cars will be sold abroad this year, at approximately 40 cents a pound, winning for us from foreign markets the rewards of American brains and business organization and of labor values. Surely this is far better than to barter away our lumber, ore, and other natural resources at a cent or two cents a pound, as we have been doing in the past.

In the development of this type of industry, characterized by production in hundred-thousand lots, the United States possesses a peculiar advantage. There was a time in the past when our main advantage lay in the then almost limitless extent of our natural resources. We bartered these resources away in the markets of the world for the bare cost of digging them out of the ground and hauling. That day is passing. We are, as yet, not well equipped to compete with Europe by the superior skill and personal training of our labor, but we have in the breadth of our markets the basis for such a business as that of the Ford Company. Thirty-nine per cent. of the world's railroad mileage lies within the United States. No nation is so thoroughly bound together in a homogeneous market, by transportation, telephone, telegraph, national publications, and national advertising as the United States. Nowhere else is there such a unified market of as high average buying power of a hundred million people. On the basis of this broad market, industries like the Ford business can be developed which, when once under way, will achieve costs so low that they can penetrate into all export markets. Indeed, in a half conscious way, our national genius has already expressed itself in this way. American typewriters, cash registers, dollar watches, are all products that have first taken advantage of the breadth of our own market and then have penetrated the markets of foreign countries.

THE MARCH OF THE CITIES

TRAINING THE BOYS FOR CITIZENSHIP

"TRAIN the boys for citizenship by letting them coöperate with grown men in real civic work." This idea, in varying form, is now being put into practice in many American cities. In Cleveland and New York, for example, the municipal authorities have gladly accepted the coöperation of the boys in an effort to keep the parks clean. Many of the boys in New York have been given authority to warn the careless or thoughtless against scattering waste and rubbish, under penalty of arrest by the regular park patrolmen. Last summer these boys repeatedly demonstrated the value of their assistance by their thorough efficiency and watchfulness. Such training, though it is indirect, nevertheless does give to the boys one of the strongest inspirations toward the development of public conscience, at the same time that it effects a most valuable public service.

Winston-Salem, N. C., Cumberland, R. I., and Altoona, Pa., have enlisted the assistance of the boys in the same direction by calling on them to help in making an industrial survey of the town, or similar work. Salisbury, N. C., has practically metamorphosed its whole Negro district through the ready coöperation of the young Negroes as well as of their elders.

Another field in which the encouragement and recognition of boys' clubs by the city has proved its worth is in the delegation to responsible boys of a limited police authority over municipal playgrounds. In Johnstown, Pa., and in Toledo, O., there is no need for regular police supervision at the public centres where children congregate. The boys keep order, and keep it mighty well. Philadelphia, too, has reason to be proud of its juvenile patrolmen who, as in the famous instance of the regenerated "Swamp Poodles" — a gang of young toughs who once made life unbearable to the neighborhood — have taken such pride in their parks that roughness and cheating are severely discountenanced.

Schools with regular courses in municipal government are doing notable work in training for citizenship in Lincoln, Neb., Evanston, Ill., and Steubenville, O. Prominent business men in Lincoln, Neb., give a regular course of weekly lectures that bring the theory of the classroom into relation with the practical life of the community. Kansas City, Mo., goes even farther and requires a knowledge of the government of a city as a prerequisite to the study of national government.

The Commercial Club of Evanston, Ill., has established and maintains a gymnasium and boys' club where the young men of the neighborhood are always welcome. In this club are 173 active and 67 associate members, all of whom pay an annual fee of one dollar. These boys and young men are keenly interested not only in their own organization, the Olympic Club, but in the broader field of civic endeavor.

The commercial organization of Norfolk, Neb., gives an annual dinner to the boys of the town, as does the club at Rochester, N. Y. Many similar clubs throw open their doors on one afternoon and evening of the week, invite the boys to come in, make themselves at home, and get acquainted with the business men of the town. This plan does good in two ways: the boys are eager and proud to know the "big men" of the community, and the men themselves get a very real pleasure from association with their lively juniors.

Still other clubs combine with their hospitality and entertainment occasional trips to the larger factories and mercantile houses of the city that have high educational value to the boys. The business men of Rochester, N. Y., conduct such a trip every week, and the boys who make the excursion are taken in "on the ground floor" and told all about the workings of each individual industry. Marion, O., uses a similar method of acquainting the boys with the business of the city. At Poughkeepsie, N. Y., a definite attempt is made to provide positions for local boys in local industries.

MAN AND HIS MACHINES

A MILKING MACHINE THAT IMITATES THE CALF

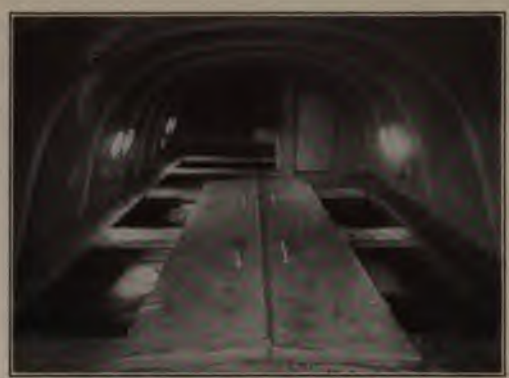
A MILKING machine provided with teat cups which are designed to imitate the operation of a calf's mouth in extracting milk from the cow's udder is here shown. One side of this teat cup is hard rubber, of about the same consistency as the roof of the calf's mouth. The other side is of soft collapsible rubber, to correspond with the lower part of the calf's mouth. By means of an air-pressure pulsator, which may be seen in the form of a cylinder on top of the machine, the teat cups are caused to pulsate in close imitation of a calf's sucking. The air pressure is provided by a small rotary engine. The pulsator has only two parts — a cut-off valve and a piston. The milker is built without gears, springs, or wheels and this lack of complexity keeps it from easily getting out of order. One man with milkers of this type can milk about twenty-five cows an hour. Eight cows an hour is considered a good rate in hand milking.

A NEW TYPE OF LIFEBOAT

AN interesting new type of lifeboat is equipped with wireless apparatus. The boat is made entirely of metal and is housed to protect passengers against wetting, if it is capsized.

The new lifeboat is 30 feet long and is equipped with a 24-horsepower motor which drives it at six miles an hour. The propeller works in a tunnel, which protects it from driftwood. This is probably the smallest craft that carries a Marconi wireless outfit. Messages can be sent seventy-five miles and received from within a radius of one hundred miles.

This housed lifeboat is entirely closed



INSIDE THE "WIRELESS" LIFEBOAT

A WATER-TIGHT, NON-CAPSIZABLE CARRIER THAT WILL HOLD SIXTY PEOPLE AND THAT CAN TRAVEL AT SIX MILES AN HOUR UNDER GASOLENE MOTIVE POWER

in by water-tight iron doors and windows. In a test of stability it carried fifty men while seventeen men were hanging on to the outside rail on one side, and it did not

A LIFEBOAT THAT CARRIES WIRELESS APPARATUS

IT CAN SEND MESSAGES 75 MILES AND RECEIVE MESSAGES THAT ORIGINATE 100 MILES AWAY

even list the "decks to." Forward and aft the boat carries large reels upon which life lines are wound. They can be thrown to shore or on board a rescue ship by guns mounted forward. The double bottom has air compartments and scuppers.

Tests made with smaller, unhoused boats of this type showed that the big boat could pass line and tow the others with ease. Rowlocks just below the port lights permit rowing with six sweeps, if necessary, in getting away from a ship's side.

In a capsize test, a line was put under the boat and the craft was "parbuckled" upside down; but it flopped back to upright position in a second.

COMBINATION PILE DRIVER AND WRECKING CRANE

RAILROADS, like other big undertakings, are continually seeking for added simplicity in working mechanisms. Here is a combination wrecking or loading crane and pile driver. In the illustration that shows it as a loading crane, an electric magnet is lifting an 8,400-pound load of rails. The electricity for the magnet is generated in the cab. The boom is 50 feet long.

When the outfit is to be used as a pile driver the boom is lowered on to a work car, the pins withdrawn, and a collapsible pile-driver lead and framework takes its place, made fast by the same pins. The change may quickly and easily be made. The collapsible character of the pile driver is of importance when it is necessary to run to a siding to leave a main line clear. Were it not that the lead can be collapsed it might easily happen that a bridge or viaduct would shut off progress until the entire outfit was dismantled. By its flexibility in this direction the collapsible pile driver achieves a valuable economy in operation.

A COLLAPSIBLE PILE DRIVER

THAT CAN QUICKLY BE CONVERTED INTO A WRECKING MACHINE BY THE SUBSTITUTION OF THE SPECIAL BEAM THAT APPEARS IN THE PICTURE ON THE FACING PAGE

ELECTRICITY REMOVER FOR PRINTING PRESSES

STATIC electricity, which has a tendency to gather in the paper when large printing presses of the cylinder type are in operation, and which often causes the paper to get out of control and clog the press, particularly during cold weather when the air does not absorb the electricity so readily, is a nuisance that is sufficiently provoking to require a special remedy.

One of the latest devices to stop this trouble employs heat generated by electricity to warm the air. The warmed air

TO TAKE THE ELECTRICITY OUT OF PRINT PAPER ON COLD DAYS

STATIC ELECTRICITY IN PAPER MAKES THE SHEETS STICK TOGETHER AND SO CLOGS THE PRESSES. THIS DEVICE GETS RID OF IT

currents dry the ink and carry off the static charge with the moisture. The device thus serves a double purpose.

The apparatus, very neat and compact in design, can be attached to or removed from the press at will and takes up very little space. It consists of a panel made of a transit board, 5 feet long by 9 inches deep, upon which are mounted four special resistance-type heater tubes, each 22 inches long by 2 inches in diameter. The tubes are insulated with a special compound and are mounted in two rows. Two switches are provided, each controlling one row of two tubes, thereby giving a variable control of the heat. The device consumes a maximum of 2,000 watts, each tube being rated at 500 watts. Installed upon a large cylinder type, two-color press in Chicago, it is giving excellent results.

NEW CYCLE-CAR HAS STAGGERED SEATS

THIS cycle-car has, as one of its distinguishing characteristics, two seats so staggered that two persons can be comfortably seated although the machine is narrow. Thus the man at the left of the picture is seated a little behind as well as beside the driver. The speed of this little car is from five to fifty miles an hour. The motor is two-cylinder, and develops 12 to 15 horsepower. The weight of the car, fully equipped, is 550 pounds.

The cycle-car, which is best

THE PILE DRIVER BECOME A WRECKING MACHINE

AND LIFTING STEEL RAILS BY MEANS OF A POWERFUL ELECTRIC MAGNET

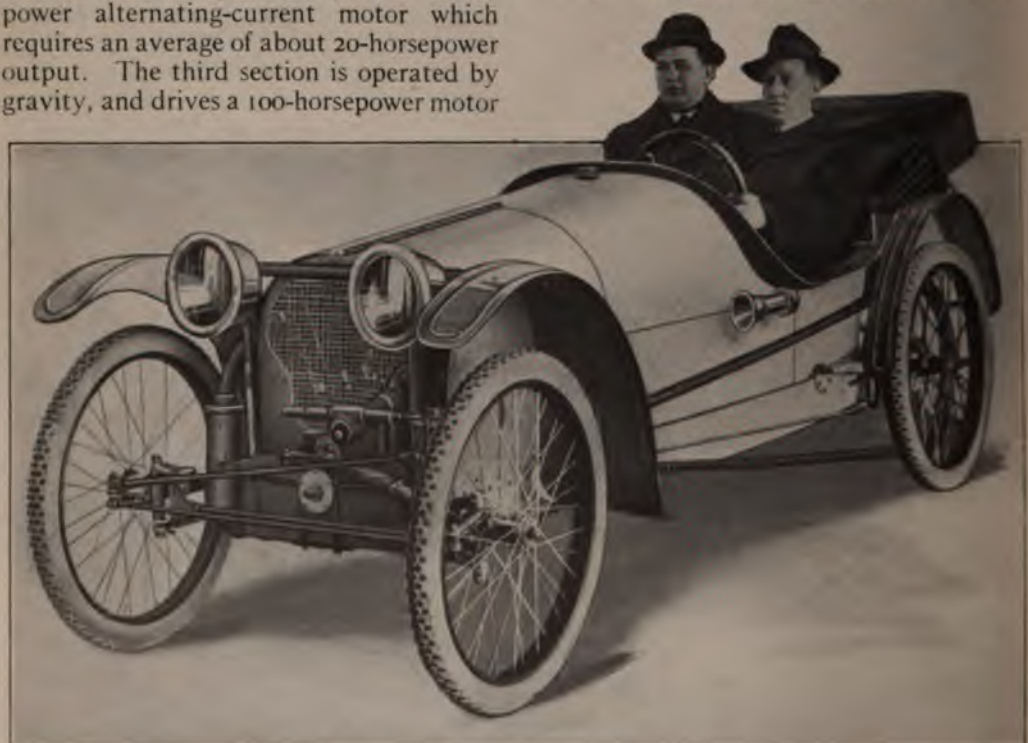
described as a cross between the ordinary automobile and the motorcycle, has been popular in England and on the Continent for some time, but in America is only now being looked on as a practical machine of wide usefulness.

AËRIAL TRAM GENERATES ITS OWN POWER

IN UTAH, an aërial tram, four miles long, with a carrying capacity of 100 tons an hour, used to transport ore from the Highland Boy mine over the Oquirrh Mountain range to a smelter, generates most of the power that is required for its own operation. This aërial tram is divided into three sections. The first section, from the loading terminal to the summit of the mountain 1,455 feet above, is 4,600 feet long. The second section, from the summit to an intermediate station 1,500 feet below, is 3,760 feet long. The third section is 12,740 feet long, with a fall of 1,219 feet. The first two sections are operated by a 100-horsepower alternating-current motor which requires an average of about 20-horsepower output. The third section is operated by gravity, and drives a 100-horsepower motor as a regenerative brake which supplies the power for the first two sections and a full-load surplus of about 55 horsepower.

The principle on which the motor of the third section operates as a regenerative brake, providing power for the operation of the tram, is this: This motor is wound for a certain speed. Until the traction cable on which the carriers are strung is operating by gravity alone (that is, by the natural "pull" exerted by the loaded carriers descending) at a speed that synchronizes with that for which the motor is wound, the motor will be furnishing power. But when the speed of this cable under the "pull" exerted by the loaded carriers would be greater, if unrestrained, than that of the motor, which is the case here, then the motor acts as a regenerative brake — that is, the motor keeps the cable and carriers from operating at a speed greater than that for which the motor is wound, and by so doing generates power for the operation of the sections that cannot depend upon gravity alone.

More than 200 carriers, each of which



SEATS FOR TWO IN A NARROW CAR

THE MAN AT THE LEFT SITS SLIGHTLY BEHIND AS WELL AS BESIDE THE DRIVER OF THIS CYCLE-CAR

PERPETUAL MOTION — ALMOST

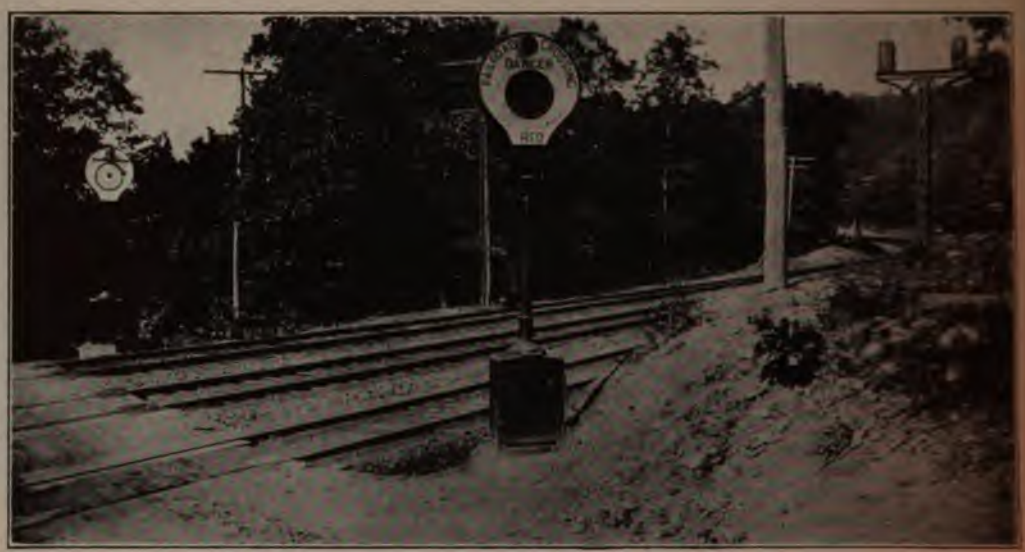
DESCENDING CONVEYERS ON ONE SECTION OF THIS GRAVITY SYSTEM OF ORE CARRIERS GENERATE MOST OF THE ELECTRIC POWER THAT HAULS OTHER CONVEYERS UP TWO OTHER ASCENDING SECTIONS

has a capacity of about 1,150 pounds of ore, are used, and the line operates at a speed of 600 feet a minute.

NEW GRADE-CROSSING WARNINGS

THE two new grade-crossing warnings here shown are of particular interest because they are old devices adapted to new purposes.

The demand for an effective warning at highway crossings caused the Lehigh Valley Railroad to install the same sort of an electric block system as it uses along its line to control trains. This device is the familiar "banjo" signal, placed at right angles to the crossroad. When a train approaches, this signal shows a red disk and a loud gong rings. When there is no train approaching a white disk is shown, which notifies traffic that it is safe to cross. At night the signal is illuminated by a light shining through



"BANJO" SIGNALS MADE INTO WARNING POSTS

AN UNUSUAL AND EFFECTIVE VARIATION OF THE ORDINARY DEVICE THAT PROTECTS DRIVERS OF VEHICLES AT GRADE CROSSINGS

the red or white disk. If the wires operating the signal are broken, either by accident or design, the red disk shows until the defect is remedied.

The other grade-crossing system is also operated automatically. As soon as a train enters the electric circuit, the arm that carries the flexible drops falls to danger, a gong is rung, and a red light is shown. The flexible drops are made of a specially designed light-weight chain which does not tangle. In the majority of installations these warning signals are placed on each side of the track.

ANOTHER NEW WARNING AT A GRADE CROSSING

HERE THE DANGLING ROPES THAT PROTECT BRAKEMEN FROM APPROACHING "LOW BRIDGES" AND TUNNELS ARE ADAPTED TO WARN DRIVERS OF AUTOMOBILES TO STOP FOR PASSING TRAINS

June, 1914

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The World's Work

ARTHUR W. PAGE, EDITOR

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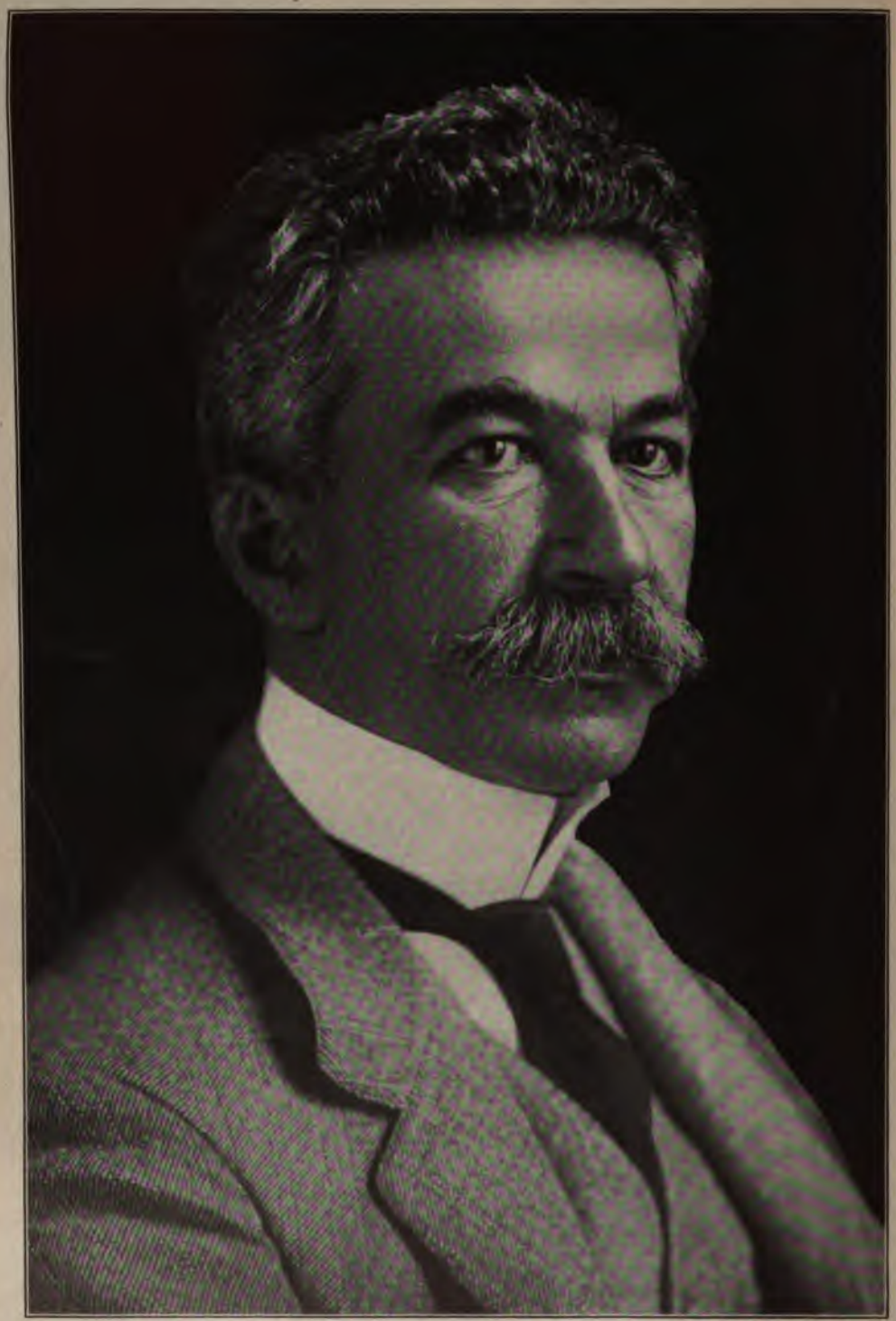

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MR. DOMICIO DA GAMA

THE BRAZILIAN AMBASSADOR TO THE UNITED STATES WHO, AS THE RANKING REPRESENTATIVE OF ARGENTINA, BRAZIL, AND CHILE, WAS THE SPOKESMAN OF THOSE POWERS IN THE OFFER TO MEDIATE BETWEEN THIS COUNTRY AND MEXICO

THE
WORLD'S WORK

JUNE, 1914

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THE MARCH OF EVENTS

MEXICO is rapidly forcing us to clarify our international position. The war south of the Rio Grande was the event that vitalized the Monroe Doctrine to cover an active responsibility for the countries immediately south of us — Central America and the island states of the Caribbean.

When the Argentine, Brazil, and Chile offered their services as mediators in the Mexican question, and the offer was accepted by our Government, another far-reaching definition was added to the present Administration's interpretation of the Monroe Doctrine. Our acceptance of mediation by the three great South American Powers would certainly seem to mean that they are no longer subject to an active Monroe Doctrine — that they are not open to European aggression or such internal disturbance as warrants outside interference. Their progress and prosperity is the guarantee of the maintenance of the principles of the Monroe Doctrine in South America. If our assistance were needed of course we should give it, but so long as it is not needed a standing offer of assistance in the shape of the Monroe Doctrine seems a little condescending and irritating and has been so regarded. There could hardly be a happier way of removing this irritation than to receive assistance from these countries. The proper recognition of the achievements of the South American countries cannot in any way lessen the force of the fundamental idea underneath the Monroe Doctrine — that the Americas are for the Americans. On the contrary, it adds defenders to the principle. Moreover, the acceptance of mediation from the South American countries is another evidence of the good faith of our disclaimer of territorial ambitions.

Conditions in Mexico make necessary our interference in one way or another. It is most important for us to prove to the Mexican people, to South America, and to Europe that our actions are disinterested. Without discussing in the least the propriety or the impropriety of our territorial acquisitions in 1898 or the taking of the Panama Canal Zone, it is a fact that these events have made all Latin America look upon us somewhat apprehensively. It is a happy sign, therefore, that, when a situation like the present one arises which would normally add to that apprehension, we are able to have the friendly assistance of the Argentine, Brazil, and Chile. For

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THE TAKING OF VERA CRUZ

UPPER PICTURE. MARINES PUTTING OFF FROM AN AMERICAN BATTLESHIP TO OCCUPY VERA CRUZ. MIDDLE PICTURE: THE MARINES ENTERING THE CITY. LOWER PICTURE: MEXICAN SOLDIERS RESISTING THE ADVANCE OF THE AMERICANS

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BY AMERICAN MARINES

UPPER PICTURE: ARRESTING MEXICAN SHARPSHOOTERS WHO RESISTED THE OCCUPATION. MIDDLE PICTURE: THE AMERICAN MARINES DRAWN UP IN A PUBLIC SQUARE OF VERA CRUZ. LOWER PICTURE: AN INCIDENT IN THE ARREST OF MEXICAN "SNIPERS"

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REAR-ADMIRAL HENRY T. MAYO

WHOSE DEMAND THAT GENERAL HUERTA MAKE FULL REPARATION FOR THE ARREST OF SAILORS FROM THE "DOLPHIN" AT TAMPICO LED TO THE ARMED DEMONSTRATION AGAINST THE PROVISIONAL GOVERNMENT OF MEXICO

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BRIGADIER-GENERAL FREDERICK FUNSTON

OMMAND OF THE AMERICAN TROOPS THAT RELIEVED THE MARINES AT VERA CRUZ

MAJOR-GENERAL LEONARD WOOD

WHO, WHILE HE WAS CHIEF OF STAFF OF THE UNITED STATES ARMY, DIRECTED THE PREPARATION OF COMPLETE PLANS FOR ALL MILITARY OPERATIONS THAT MAY BE NECESSARY IN MEXICO, WHICH HE IS DESIGNATED TO COMMAND

ld hardly take the action which e taken, unless they were con- at our intentions toward Mexico nterested and that none of the ons of "Dollar Diplomacy" actu- fforts.

:arest approach to this present ent in Pan-Americanism was the ı of Senator Root when Secretary hat the Argentine, Chile, Brazil, co should be monitor nations for nerica; and, curiously enough, s arrangement Mexico actually stop to an entanglement between ı and Honduras.

present Mexican difficulty the , Brazil, and Chile have from the beginning acted with the United States in refusing to recognize Huerta, and it is significant that when our chargé d'affaires left the City of Mexico he left our embassy in the hands of the Brazilian Minister there.

The most far-reaching effect of the mediation, then, is not the effect upon the immediate problem in Mexico but the new aspect it puts upon our relations with South America and the confidence it inspires in our disinterestedness. It will not, of course, remove all prejudice against us in South America, but it is a very large and important step in that direction and it aids us in future efforts to help Central America that may become necessary.

JR ARMS AND AIMS IN MEXICO

HE mediation proposals of the South American countries were immediately helpful, for they brought about an armistice during which the American n Mexico City and elsewhere in ior could escape under less circumstances than would have been possible.

ıs it was, many hundreds of ortunates owe their escape to the ıd friendly action of the British ces which brought out many in serious danger from places he reach of our troops. Not the British actively aided our but the Japanese embassy in on had the courtesy and tact not the invitation of the Mexican affaires, Señor Algara, to take the business of the Mexican hen he received his passports.

:xican situation, serious as it is, ıestion by itself. It is a part of dering of the responsibilities of oe Doctrine. We have said to 'Hands off the countries of Cen- ica and the Caribbean. These ıst govern themselves. If they it alone, and need teaching, he teaching."

We have been patient in the hope that Mexico could attend to itself. We hope that it will be able to attend to itself with as little teaching from us as possible. After the elimination of the Huerta dictatorship is accomplished there still remains the constructive task of building up a government in Mexico which is strong enough to govern, wise enough to adopt the measures of reform (especially the land laws) necessary to keep the popular support, and adroit enough to keep the North and South of Mexico (which are very different) in harmony. If there are men in Mexico to do this heroic task we should give them every encouragement in it. If there are not, we are in better shape to help Mexico than we were to help Cuba, for the men who gained experience in constructing the Cuban government are available for service in Mexico. Either without our assistance or with it (preferably without), a proper Mexican government must be established. This is the one fact which should not be lost sight of. It is the permanent and fundamental background of the whole situation.

Mexico must govern itself. That means that we do not want and cannot have a foot of Mexican territory. Mexico has been an expensive neighbor for the last two or three years. It seems likely to be

more so in the near future, but we cannot afford to reimburse ourselves for this expense by taking territory. If, out of this turmoil, a stable, decent government arises in Mexico, that will pay us well for our efforts. A contented and prosperous neighbor is of infinite value to us. A province of alien problems territorially attached to the United States would be for us the worst inheritance of an unrighteous war, for if we have a war of conquest it will be an unrighteous war.

There is no question but that the bulk of the people are with President Wilson in his disclaimer of any intention to take any territory. There are a few people, however, and among them people who have large private interests in Mexico, who are urging a war of conquest. To carry on a propaganda of this kind in this country is serious enough. But its effect in Mexico is far worse. Consider the effect on the minds of Mexicans who see the papers owned by Americans who are large landholders and concessionaries urging war with Mexico. They cannot help feeling that the war wanted is a war of conquest. It is such people who make the Constitutionalists in the North nearly as suspicious of the United States as they are of Huerta. The Americans who are for war for private gain have been so much in evidence that they have greatly increased the difficulties of our relations with Mexico and have given Huerta the very material that he needed upon which to make his statement that "Mexico is defending not only her national sovereignty but that of all Latin America as well."

It may cost us blood and treasure to prove to Pan-America that that statement is a lie, and a part of that cost belongs to men who have given Mexicans reason to believe that the United States will engage in a war of conquest. If their consciences are clear that what they have done was done from purely patriotic motives their honest errors have cost this country dearly. If private gain has influenced the course they have pursued, even a merciful justice will not exonerate them.

In carrying out our policy of trying to allow Mexico to settle its own difficulties, we showed a long patience, under very trying circumstances, until at last General Huerta's attempts to embroil the United States succeeded. Whether he felt that our patience was fear and our attitude a "bluff," or whether he was merely playing his last card, probably he alone knows. The arrest of the American sailors was deliberate. Admiral Mayo's demand for a salute was in accord with international usage. We ourselves once sent a warship to Rio Janeiro for the very purpose of tendering such an apology to Brazil for a mistake made by an American officer. The Government had no alternative but to support Admiral Mayo, and even while Congress was discussing the question of giving the President its sanction to use the Army and Navy of the United States, the Navy took Vera Cruz.

Then came a short period of acute tension when no one knew whether the followers of Villa and Carranza would accept the President's statement that the taking of Vera Cruz was not an act hostile to the Mexican people but merely toward Huerta. Carranza's first note about the incident at Vera Cruz intimated a hostile attitude. Villa, with some of his troop trains, started north from Chihuahua to Juarez. Across the river from Juarez at El Paso were two or three thousand Mexican Federal soldiers under the guard of the American garrison. If Villa had joined Huerta against the United States and had made a sudden attempt to release these prisoners, a war of intervention would almost certainly have followed immediately. This particularly delicate situation passed away when Villa announced that he would keep peace with the United States.

In our effort to eliminate Huerta as the possible basis of the establishment of a proper government, we patiently tried non-recognition and diplomatic pressure. After that the steps are fairly clearly marked out — a blockade, mediation, a punitive expedition to the City of Mexico, a complete intervention such as we had in Cuba. It seems to be the policy of the Administration to take each step only when it becomes absolutely clear that the one before will not work. That is, of course, as it should be, but it is also gratifying to know that, even if the final step is

ry, we have the machinery to do k efficiently. The United States nd Navy are in a better state now ey have been at the beginning of r since the founding of the Nation. ı the order came, on the morning

THE LINES OF APPROACH TO MEXICO CITY

RAILROAD CENTRES OF TORREON, SALTILLO, AND MONTEREY ARE THE STRATEGIC POINTS IN MEXICO, FOR EXCEPT THROUGH THEM NO ARMY CAN MOVE NORTH OR SOUTH. TAMPICO AND COMPLETE THE LINE WHICH THE CONSTITUTIONALISTS UNDERTOOK TO ESTABLISH. THE POINT IN THE SOUTH, OF COURSE, IS VERA CRUZ

lay, April 21st, to take Vera Cruz,

Fletcher proceeded to occupy y with a precision and despatch ere eloquent of careful preparation. four hours after his first boatload ıes from the *Prairie* had jumped 'era Cruz was in our hands and the house, Huerta's principal source of income, was under American administration. After the brief shooting was over, not only were there no subsequent disorder and confusion, but that Mexican seaport passed at once into a régime of unprecedented order and sanitation. Shopkeepers and householders unbarricaded themselves to find that the "Gringoes," who with rifles and bayonets had forcibly taken possession of their city, were actually cleaning and policing its streets.

All along the line, from naval station and at sea, telegraph and wireless brought instantly alert, obedient response, so

that within eighteen hours from the time the pale-faced President folded back the last typewritten sheet of his "war" message, the whole Navy establishment was operating perfectly in relation to the Mexican situation.

Admiral Fletcher's readiness at Vera Cruz was simply the most conspicuous instance of naval readiness. The Army's preparedness, less impressive at first because its visible action was properly delayed from Washington, was nevertheless no less thorough. Just one week after Admiral Fletcher's gray launches, "in the face of an approaching norther," landed his fighting marines and sailors on the wharves of Vera Cruz, General Frederick Funston steamed into the harbor with four white transports from Galveston and put his Fifth Army Brigade, visibly dejected by the news of mediation, peacefully ashore.

The transfer of command from the Navy to the Army was made in accordance with a despatch from the Secretary of War to General Funston appropriately recognizing the Navy's efficiency as follows:

> The Secretary of War is explicitly requested by the President to say to you that the President entirely approves in every respect of the course which Admiral Fletcher has pursued in the occupation, control, and management of the city of Vera Cruz since his landing; that he has the greatest confidence in Admiral Fletcher's judgment; has learned to depend upon his long acquaintance with the situation for guidance, and desires that you keep in close touch and consultation with the Admiral and seek to continue in intimate harmony with the policy he has initiated there except so far as change of circumstances may demand a different course.

This despatch is also worth quoting because it phrased promptly at the start of operations in Mexico the necessity for coöperation between the Army and the Navy, a coöperation which was almost entirely lacking in the Spanish War.

The first outward and visible evidence of the preparedness of the Army came with the embarkation of General Funston's reinforced brigade at Galveston. The same correspondents who had witnessed the confusion at Tampa in 1898, when regiment after regiment scrambled aboard coast-trade steamers, devil take the hindmost, marked and recorded the change For many months the Second Division, from which the Fifth Brigade was chosen, had been mobilized at Galveston, and those months had been spent in long practice marches in full service kit, in manœuvres under war conditions over the same kind of lands as Mexico, and in long hours on rifle ranges. Every man of that Division was fit and ready to move when, on the night of April 23d, a telegram broke up an officers' dance at the Hotel Galvez and sent the Adjutant-General's motor car honking out to headquarters, and provost guards, sticking their heads into "movies," saloons, and billiard parlors, brought the missing men in khaki joyfully back to camp.

At daybreak on the following morning the chosen regiments of the Fifth Brigade broke camp, marched down to the docks, and embarked aboard four Army transports ready to receive them. As Richard Harding Davis, whose standards come of many wars, wrote as a witness, "They embarked in a manner to give credit to their officers and pride to the taxpayers."

During the months when the country at large ignored the Mexican situation, the General Board of the Navy and the General Staff of the Army were perfecting plans for possible intervention in Mexico. How thoroughly these plans were made has been demonstrated at Vera Cruz, Galveston, and in the mobilization centres in the United States. Many months ago these plans were perfected, and since then, as from day to day additional information is received, they are kept up to date. So it happened — after Huerta defied our ultimatum in the South, and Carranza in the North seemed temporarily to regard our military acts of April 21st-28th (specifically defined, as they were, against the Huerta government *only*) as belligerency against the whole of Mexico — that it would have been possible to throw the Regular Army into action at approximately the same time and without confusion on the line from Vera Cruz to Mexico City and along the Rio Grande. The marble halls of the War Department, which in April, 1898, had

been jammed and tumultuous with panic, remained as tranquil in the April days of 1914 following the President's request for the use of the Army and Navy as they had been in the routine weeks before. This state of preparedness reflects the highest credit on the efficiency of the General Staff and on the general advance in mobility and coöperation in the various branches of the Army since the Spanish War of 1898. It adds to the Nation's sense of security to feel that its armed forces are in such competent hands and are animated by such a spirit.

In time of war the activities of the military establishment embrace (*a*) what is called *The Service of the Interior*, which means the vital organs of the Army: commissary depots, arsenals, hospitals, etc., mobilization and concentration camps, the bureau chiefs in Washington who advise the Secretary of War in the technical details of their several departments; and (*b*) *The Service in the Theatre of Operations*.

The latter, though no more important than the comparatively obscure half of an army's operations, constitutes the vivid side of the war, that side which becomes more and more familiar to the public in names of men and regiments at the front. At present the fighting service is under the command and direction of Major-General Leonard Wood, who by an odd coincidence finished his term as Chief of Staff of the United States Army on April 22d, the very day on which Congress passed its joint resolution upholding the President. Long before Admiral Mayo's boat's crew were arrested at Tampico, General Wood had been designated by the War Department for this possible service. He had already picked his staff officers, each of whom during the latter days of April were packed up and ready to move on a half-hour's notice, and with them he had constantly rehearsed a concerted scheme of operations on Mexican soil.

General Wood has a peculiar fitness for the constructive as well as the destructive work of a Mexican campaign — a fitness gained by his service in the Philippines and in Cuba. In both cases, but particularly in the two interventions in Cuba, he made a record as an administrator that well justified the phrase with which he received his honorary degree at Harvard as "the restorer of a province." General Wood understands the Latin and Indian characteristics. He unites with fighting qualities patience and a rare ability, gained by twenty years' experience, in reconciling alien peoples to new ways of living and working. He is at once a military destroyer and a civil restorer.

It is also fortunate that with him as chief is a group of subordinates, many of whom have served under him in war and in the upbuilding administrative labors of peace.

Any American army in the field now would benefit by a higher degree of co-operation with the War Department and would get far abler direction from it than our armies have had in the past. In the Civil War, for example, General Halleck in Washington was always at odds with the generals in command in the field. In 1898 the War Department and the field army organization broke down so that military operations were undertaken on foreign soil without proper information, plans, commissariat, or hospital equipment. Our combination regular and volunteer armies suffered accordingly.

It was this very failure which caused Mr. Root, when Secretary of War, to look into the causes of the Army's inefficiency. The result of his investigation was a thorough reorganization. The General Staff was created, the War College established, and a proper system of coördination between Washington and the firing line solidly founded.

At present, for example, if General Wood were to take the field, General Wotherspoon, who was, before April 22nd, his assistant and has now succeeded him as Chief of the General Staff, would be in full coöperation with his late chief. General Wotherspoon, as well as General Wood, knows both the fighting and the constructive, government-building tasks of an army of intervention, for, besides his service in the Philippines, he was chief of staff under General Wood in our second expedition to Cuba.

Such is the type of commanding officer

— Wood, Wotherspoon, Scott, Funston, Bell, Bailey — that Mr. Root's reforms bring now in time of national emergency to the posts of responsibility. The days of a comfortable, all-powerful bureaucracy are over and the Army may now, when it is called upon, benefit in its direction by a preparedness as complete as possible within the limits imposed by Congress and by a thorough mutual understanding in carrying out prearranged plans.

In addition to the Second Division which, with the exception of Funston's Fifth Brigade, reinforced at Vera Cruz with artillery, cavalry, and signal corps to 5,000 men, was mobilized at Galveston, the Regular Army has available a cavalry division scattered along the northern border of Mexico, the First Division distributed in various posts along the Atlantic seaboard, and the Third Division stationed on the Pacific seaboard. These divisions are already provided with arms, ammunition, and supplies for the initial stages of a campaign in Mexico, although their prompt transport might be affected by the constitutional unwillingness of Congress to provide material for war before war actually begins.

This is merely one phase of the difficulty which has always hampered the Army and which in time of war becomes a serious weakness. And that difficulty is inherent in our institutions. In this Mexican crisis, as so many times before, it has already been found impossible to deal with the problems that confront the Army as military problems. They are for us political problems also. Throughout the present crisis Congressmen and Senators have been deluged with telegrams and letters from their constituents with regard to the disposition of forces; a brigade has been detached from its division and sent to El Paso, another brigade of cavalry into Colorado; the Pacific Coast wants to keep the regiments composing the Third Division at their home stations. The best-laid military plans may be weakened by political considerations, and of the fifty thousand regulars available for duty in Mexico on May 1st not even the Secretary of War could make a sure estimate of the number that could be counted on in the event of active intervention in Mexico.

The line next to the Regular Army consists of the militia of the various states. Under the provisions of the new Volunteer Act, passed by Congress during the acute stage of the Mexican crisis in the last days of April, the National Guard of every state can be mobilized at centres already designated from which they may be concentrated with the militia of other states at large camps chosen with especial reference to their access to Mexico. Each state centre has been chosen primarily, not for the commercial advantages to the inhabitants thereof, but on the merits of the locality as a healthy camp site for large bodies of troops, convenient for supplies and transportation. The average person has never heard of many of these places. Under the old Dick law, still in force, the militia organizations must be accepted as units, but the new Volunteer Act will divorce them even in name from the states in which each regiment was recruited, and make of the additional 121,000 troops thus nominally available a Federal Reserve to be restandardized on a Regular Army basis and so drafted into active service. The regiments will not officially be known, as in the Civil and Spanish wars, by their respective state designations — the Twelfth Massachusetts or the Tenth Nebraska — but as the Thirty-fifth or Forty-second regiments, U. S. A.

The great weaknesses of the National Guard Divisions are (1) that they have not manœuvred as complete tactical units, and, (2) that the standard of enlistment is low in several states and that the men lack individual training. A rigid inspection has proved that nearly one fifth of the militia are physically unfit for service with the colors and that actually 60 per cent. of the men that are armed with rifles have not qualified in the lowest class of marksmen. A big cleaning out and some months of training of what is left would be necessary before this nominal strength of more than one hundred thousand men could be sifted down to an effective reserve force of two thirds or three fourths of that number. Here again, even more severely than in the Regular Army, we face the consequen-

ces of a military establishment weakened by a political control.

For whatever we do in Mexico there will be grudging credit and no immediate glory — only the quiet and enduring praise which may come long afterward if our efforts shall result in bringing to a tortured neighboring people a greater ultimate freedom than any they have yet enjoyed. If we do this and get out clean-handed, we shall have added to our Cuban chapter another example of what no other nation has done before. And as we patiently await the development of Mexico's ultimate attitude, which may force upon us many years of police duty, it should be a satisfaction to the Nation to know that our aims are unselfish and that our arms, even with their defects, are prepared as never before to carry those aims to a successful conclusion.

THE EIGHTEENTH AMENDMENT

MOST people thought, after the income tax and senatorial election amendments had been added to the Federal Constitution, that that inflexible document could be left quietly in peace for another fifty years. Few realize, therefore, that we are now rapidly approaching the Eighteenth Amendment; fewer still have any idea of the question with which it deals. The Anti-Saloon League of America is now conducting a characteristically energetic campaign to make the following clauses part of our fundamental law:

Article XVIII

Section 1: The sale, manufacture for sale, transportation for sale, importation for sale, and exportation for sale of intoxicating liquors for beverage purposes in the United States and all territory subject to the jurisdiction thereof, are forever prohibited.

Section 2: Congress shall have power to provide for the manufacture, sale, importation, and transportation of intoxicating liquors for sacramental, medicinal, mechanical, pharmaceutical, or scientific purposes, or for the use in the arts, and shall have power to enforce this article by all needful legislation.

What is the likelihood that this will become law? Two thirds majority in each house of Congress must pass this amendment. After that, two thirds of the legislatures must ratify it. What signs are there that the prohibition sympathizers can command any such support?

They have recently given a striking illustration of their influence in Congress. Two years ago the Kenyon-Webb bill passed both houses. This law prohibits the shipment of alcoholic liquors from one state or foreign country into another state where it is intended to be used in violation of the laws of that state. The purpose, of course, was to prevent the transportation of liquors into a prohibition state — an end which, according to the temperance advocates, is rapidly being achieved. President Taft vetoed this bill. The temperance people, however, had no difficulty in getting together the necessary two thirds vote to pass the bill over the President's veto. Whatever the impartial citizen may think of the merits of such a law, one thing is clear enough — the enormous influence of the prohibition preachers in both branches of Congress. If they can muster the same support for their favorite amendment, it will pass.

When it comes to possible influence upon the ratifying legislatures, the situation is even more striking. A map published in the last issue of the *Year Book of the Anti-Saloon League* shows that the greater part of the country in territorial extent — in figures 2,132,746 square miles of 2,973,890 — is now under no-license laws. Of the 91,000,000 people in the country, 46,000,000 are living under no-license laws. In parts of certain states, a new generation is growing up that has never seen a saloon. The *National Liquor Dealers' Journal*, which is widely sounding the "alarm" against the temperance people, declares that there are twenty-seven state legislatures now ready to vote for a constitutional amendment making the outlawry of alcoholic drinks nationwide.

Inasmuch as the votes of only thirty-eight states are required, the prohibition people, at the present moment, need only eleven more legislatures to make the proposed change a reality. And the prohibition leaders, who are the most persistent, the most tireless, the most fanatical fighters, if you will, in the country, have hardly begun their campaign.

THE LITTLE COUNTRY THEATRE

THE Little Country Theatre is the name of an experiment that the North Dakota Agricultural College has been trying recently. Its purpose is to show that any rural community can give acceptable theatrical performances with "home talent," and that these performances can be made useful in socializing country life.

The College, for this purpose, has adapted a large room on the second floor of its administration building. The room is about the size of an ordinary country town hall. After building a stage thirty feet wide and twenty feet deep, the room will seat about two hundred people. Thus a play that can be produced here could be produced almost as well in a country school or church or even in the sitting room of a farm home.

Half a score of plays have been produced in this theatre. "Miss Civilization," "Country Life Minstrels," "Cherry Tree Farm," "A Fatal Message" — these are some of them. All are short, playing only about half an hour, as the purpose of them is as much to start the fun of a social evening as it is to divert. Most of the actors have been students from country homes, and several of them, having graduated, have written back for play-books so that they may produce their favorites in their own neighborhood.

The Little Country Theatre is a practical model for rural emulation. The theatre has been one of the influences that have attracted people away from the country. There is no reason why it should not attract them back to it again.

LESSONS OF A FARMERS' LOAN

NOT long ago a financial adviser in New York received a letter from a bank in Kansas, asking where it could place a note for $10,000, to run four months and signed by a dozen prosperous farmers. This seemingly commonplace incident is interesting in two ways. First, it shows very concretely the need of the new banking system's provisions for agricultural loans. At the time that this $10,000 was wanted, there was plenty of money in New York seeking employment, but under the old banking system there were difficulties in the way of making any of it available for Western farmers that could not quickly or easily be overcome. Under the new system, the Kansas bank could have given the farmers the money at once and sent the note on to the reserve bank of the district for re-discount.

The second interesting thing about this note for $10,000 is that it was coöperative borrowing. A dozen farmers signed it. It was much better security than twelve notes of $800 or $900 apiece would have been. Being better security, it deserved, of course, a lower rate of interest than the dozen notes would have paid.

These men represent a class of agricultural borrowers who suffer much from the lack of credit. It is to make adequate provision for such needs as theirs that the country has demanded a rural credit law. In the future there will doubtless be a well established market for farmers' joint notes — a class of "paper," as the expression is, which the bank in Kansas said it believed would find its way into the channels of business in increasing amounts under the new régime of coöperation among farmers in their financial transactions.

THE FACTS ABOUT 700 FARMERS

ONE of the most interesting contributions to the discussion about farming and living in the country appeared recently in a Bulletin (No. 41) of the Agricultural Department under the somewhat repellant title, "A Farm Management Survey of Three Representative Areas in Indiana, Illinois, and Iowa."

The authors of the paper, Mr. E. H. Thompson and Mr. H. M. Dixon, studied the complete records of 700 farms, and their studies show several facts, that are somewhat at variance with the usual popular notions.

In the first place they declare unqualifiedly that, at least so far as the Corn Belt is concerned, modern machinery, with the use of more horses and fewer men, has made the farm of less than 100 acres an inefficient unit. The 100-acre farm is the

pe of American farming and the ıt we should foster. It needs large ıd is based on the maximum prod- · man, as contrasted with the ın type which requires many men wages and which is based on the m product per acre.

survey also found that the very ırms yielded less proportionately : one-family 100-acre farm, because ifficulties of management.

with the high prices of the last two years, farming is not a particularly e business. The average labor of the 273 owners who farmed was ıd of the 247 tenants, $870. The ners had besides their labor income ent. interest on their investments.

ıer common notion, that the tenant s a shiftless and shifting individual, ıdicted by the facts of this survey. areas surveyed it was found that rage tenure was a little more than rs and that very often the reason ıge was that the tenant had be- rosperous enough to rent a larger to buy one for himself. The sta- o show that the owners who farm about 2 per cent. better yield : tenants, but that is largely due to ns over which the tenants have rol, for with most of the farms on half-shares the landlord and tenant is responsible for the wasteful of farming. There are many poor farmers, of course, but there are ny men to whom tenantry is the enue to ownership.

facts as these are particularly useful e when there is so much enthusiasm ove country conditions, because ll help to keep enthusiasm within and help to keep it directed toward achievement.

JBLIC UTILITIES AND THE PUBLIC

L kinds of enterprises are grouped together in the public mind under the general title of business, but m does not include the railroads. nction is important enough to earn separate consideration. Another kind of enterprise is achieving the same distinction. It is the so-called public utilities — particularly the sale of electricity for lighting, heating, and power.

In the last few years the electric companies have spread a network of wires all over the country so that towns, villages, factories, and even farms are in touch with a constant and cheap source of light and power. Perhaps there are many users of this electric power who do not feel that it is particularly cheap, yet speaking broadly it is cheap power, cheaper or better than any other power available, or it would not be there.

In Illinois the Public Service Company serves a territory from Chicago to the Mississippi, with branches southward to Cairo and northward to Wisconsin. There is another great company in the Northwest, another in California, another in the Carolinas, and others all over the country. Electrical systems are being put together as the railroad systems were put together. These great systems, and the thousands of independent units scattered through the land, are becoming even more interwoven than the railroads with the prosperity and comfort of all our people. To stimulate the legitimate growth and properly to regulate the activity of the public utility companies is one of the greatest material and governmental tasks before the country.

If we have taken to heart the country's experience with our railroads, in which overstimulation and the encouragement of corruption and loose methods were followed by campaigns of vengeance and regulation, if all this trouble has taught us anything, as a country we ought to handle this new and quickly developing special industry better than we handled the railroads. The public, expressing itself through its various legislative bodies, the public service commissions, the people who have money to invest, and the men who manage the electrical companies need to bend every energy to keep our public utilities in a right relation to the public. It is a task of public education and wise business statesmanship as well as of vigilant regulation, and what success we have in doing it will save us trouble a hundredfold in the future.

PORK BARRELS AND PUBLIC CONFIDENCE

REPRESENTATIVE James A. Frear, of the Tenth District of Wisconsin, recently sent the following letter to the WORLD'S WORK:

I am sending to you, under separate cover, a copy of the *Congressional Record* containing my criticisms of the $43,000,000 river and harbor appropriation bill for 1914, which in fact is a $76,000,000 proposition.

It is vicious in character, in my judgment is nine tenths bad, and ought to be defeated. It has passed the House, may pass the Senate within the next two or three weeks, and I am writing you in hope that through publicity of its contents the President will veto it. I have no personal interest in the matter but the bill ought to be defeated. Publicity based upon the facts presented will bring this result about. You speak to many thousands. As a matter of public responsibility, will you do your share?

I shall be glad to aid you in any way that I can if called upon by you.

Very truly yours,
(Signed) JAMES A. FREAR.

P. S. Your article on the "Pork Barrel" three or four years ago attracted my attention to the subject.

This bill and all its immediate predecessors are "pork barrel" bills, which means that the appropriations are urged by members of Congress because they feel that the expenditure of the money in their districts will be popular and despite the fact that in many instances, perhaps most instances, there is no possibility that the traffic on the rivers which are improved will justify the expense of improving them. The bills are passed because they give "pork" to enough districts to get a majority at election time.

There are plenty of legitimate river and harbor expenditures, but they are not distributed in as many Congressional districts as are the illegitimate ones, and with the present system of river and harbor legislation the illegitimate projects get much of the money which ought to be spent for useful improvements or not spent at all.

It is a good sign that there is an opposition to "pork barrel" methods growing up in Congress, for if Congress could stop passing such measures (either with or without the hope of having the President veto them), it would not only save the public treasury a tremendous amount of money but it would do the far more important act of removing one of the most corrupting influences in our national politics, and it would give the public an opportunity to place in Congress the confidence which of late years has been chiefly given to the Executive.

A MILLION DOLLARS FOR ANIMALS

MR. ROCKEFELLER'S gift of $1,000,000 to the Institute that bears his name, for the study of animal diseases, apparently impresses many observers as something new in philanthropy. But the study of human and animal diseases has always gone hand in hand. The laboratory workers could not separate, if they would, these two fields of scientific medicine. Practically everything we know to-day about medicine is the result of observations on animals. Galen learned that the arteries contained blood and not "air," as the savants of his time believed, by opening the arteries of a dog. Harvey discovered the circulation of the blood by experiments on animals. Pasteur revolutionized medical science and established the microbic origin of contagious disease by investigating a plague among silkworms. The first bacillus to be definitely isolated and cultivated was that which caused a terrible plague, known as anthrax, among domestic animals, especially sheep. Dr. Noguchi's discovery of the parasite of rabies, in all probability, will benefit dogs even more than it will mankind. It is not unlikely that, as a consequence of his work, dogs may be vaccinated against this disease just as human beings are now vaccinated against smallpox and typhoid fever. It is perhaps not generally known in this country, though it is known in Europe, that it was the work of an American, Dr. Theobald Smith, of Harvard University, that laid the basis for our present knowledge of the transmission of disease by insect bites. He did this twenty years ago when he

: that the common tick carried
:ever in cattle. Moreover, his work
ed how this cruel and costly scourge
be eradicated.

anti-vivisectionists forget that ani-
xperimentation brings about dis-
s that not only relieve the sufferings
an beings but of animals as well.

igh work in animal diseases is,
re, not particularly new, probably
e single gift for this purpose like Mr. Rockefeller's has ever been made. As all historians of morals show, nothing indicates the advancement of civilization so much as an increased respect for the rights and feelings of animals. The ancients did not have it; many backward peoples do not have it to-day. There has certainly been no time in history, as Mr. Rockefeller's gift, among other things, testifies, when this new rule of human conduct was so influential as it is now.

RM MORTGAGES AS INVESTMENTS

A WESTERN man wrote to the WORLD'S WORK a few months ago to ask for some information about the literature of investment. He wanted to
he titles of the best books on finance
isiness, especially those which pre-
in the most intelligible form the
ental principles of judging the
of corporation bonds and stocks.

xplained that he happened to be
; information of that kind, not be-
e was altogether a novice in invest-
matters, but because, after fifteen
f satisfactory experience with one
f security, circumstances had arisen
made it seem desirable for him to
ew methods. But before doing so,
ed to acquire at least a reasonable
t of ability to discriminate, and he
illing to devote to a study of the
ns involved whatever time might be
d for the purpose.

went on to say that he had spent
ally all his business life in that
the country where men were prone
h at what they considered the pro-
ism of the typical Eastern investor,
they pictured usually as shivering
shoes whenever Western mortgages
entioned. He had kept his money
ed in that type of investment for
han a decade at an average yearly
of 6½ to 7 per cent., with security
less than three, and frequently as
s seven, to one — and without a
of a loss. He said he had seen the time when good farm mortgages in his locality could be had to yield 10 per cent.; that the time when there was no difficulty in finding mortgages of undebatable character at 8 per cent. was within easy recollection; and that it was not so very long ago that the supply of what was regarded as the ultra-conservative kind of farm mortgages, yielding 6 to 6½ per cent. was adequate for the local demand.

But more recently conditions had been changing rapidly. The prosperity of the community had not only served to decrease the supply of mortgages as a whole, but it had invited competition among the more resourceful "foreign" lenders, so that the local investor was being placed at an increasing disadvantage. On one occasion recently, he said, he had had a mortgage paid off and, finding nothing to his liking with which to replace it, he had more or less reluctantly made his first departure from his old custom by putting the money into local municipal bonds. However, he felt now that perhaps he should be prepared to choose other alternatives. Hence his praiseworthy thirst for first-hand knowledge about corporation securities.

In replying to the Western man's letter with the desired information about the books, and with some commendation of his determination not to set sail upon a new investment course without knowing how to recognize at least the more conspicuous beacon-lights of safety, a splendid opportunity was offered to assure him that, even though he might find some difficulty in

tempering his prejudice for mortgages, he would sooner or later discover that in broadening his investment experience he had acted upon a sound principle. It was suggested that he might continue his new course with less reluctance if he were to study with particular care the subject of diversification — the method of risk-splitting, which safeguards the millions of the banks and insurance companies, and which is just as easily applied by the individual investor of average resources.

It seemed pertinent to suggest, also, that there was no reason why he should become alienated entirely from his favorite form of investment, even though suitable local mortgages continued to be difficult to find. He was, in fact, advised to investigate thoroughly the opportunities offered by other communities for sound investment of that kind.

And that bit of advice is really the point of this story. The local mortgage, subject to the nice personal scrutiny of the investor of intelligent judgment in respect to both its physical and moral risk, will, of course, always command universal and wholehearted endorsement. But nowadays only the "old-fogeyish" critic will advise indiscriminately against all farm mortgages except those which may be found in the investor's own community.

There are probably a great many people in the "provincial" East who, as our Western friend has imagined, get the shivers when a mortgage on somebody's farm in the West is mentioned as a likely medium for the profitable employment of their surplus capital. The memory of the big collapse in farm mortgages in the early '90's, which brought distress upon many savings banks in New England, still lingers in the minds of the older generation of investors. But as the development of agriculture has been studied, and as the extent to which the farm, as an income-producing plant, has ceased to be operated on hit-or-miss theories has become more widely understood, the possibility of a recurrence of anything like the events of the '90's has seemed more and more remote.

The way in which those resourceful and scientific investors, the life insurance companies, have continued to reach out, year after year, for mortgage loans into practically every section where the industry of agriculture flourishes, and the impressive results of their experiences, have served slowly but surely to remove old prejudices from the minds of individual investors everywhere. Added to this, there has been a growing confidence in the modern methods of making loans, adopted by scores of responsible dealers and brokers throughout the country, who are careful to discriminate between the borrower who asks for all his land will stand and the borrower who makes his proposition on a business basis, asking only for a definite sum of money for which he has a definite use.

The modern investment banker realizes that, no matter how painstaking his examination and investigation of the securities he sells may be, he must retain his interest in his clients so long as they continue to hold the bonds or stocks behind which he puts his name. And so the mortgage dealer knows that he must go even further than determining that the security behind the loans he makes is adequate. It is his duty to exercise, throughout the entire life of the mortgages he sponsors, careful supervision of the various properties that they represent; to collect and remit to his clients payments of interest and principal as they fall due; and to attend to such important details as the renewal of insurance policies and the search of the records each year to see that the taxes are paid.

This is a kind of investment service, and it is commanding wide recognition among thoughtful, conservative investors. The reliable mortgage dealers are seeking now to standardize this service by means of coöperative effort, either through a national association of their own, or possibly through affiliation with the Investment Bankers' Association.

The principal criticism of the old-fashioned "straight" first mortgage on farm land as an investment was based upon its non-convertibility.

It seems quite possible that coöperation in this field of banking may result in a sufficient broadening of the market for these mortgages to take away much of the force of that criticism.

PRESIDENT HADLEY, OF YALE

EXTRAORDINARILY BRILLIANT MIND HOUSED IN A SLIGHT FRAME OF INTENSE ERVOUS ACTIVITY — HIS FAMOUS BOOKS ON RAILROADS AND ON LABOR CONDITIONS — AN INTELLECTUAL PRODIGY AROUND WHOM COLLEGE LEGENDS HAVE GROWN UP IN HIS PRIME

BY

BURTON J. HENDRICK

MR. ARTHUR TWINING HADLEY, the president of Yale University, once described, as the essential quality of a gentleman, a willing- to accept trusts — to devote such nts as one possesses to the public ser- . In becoming a director of the New k, New Haven & Hartford Railroad, Hadley has given a striking illustra- of his favorite idea. Many Yale men rst objected to his new activity. The ıtation of the University, they urged, being used as a cloak to give respect- ity to a rather bedraggled corporation. a larger-minded view, however, the scitation of a great and much abused ɔerty may be regarded as university nsion work of a heroic order. In the twenty years the American people e found large uses for their college ls. They have pressed them into ser- as ambassadors, peace commissioners, nial administrators — one has even ɔme the head of the Nation. Why ıld a college president not prove equally ıable as the mender of a broken down oad?

his Arthur Twining Hadley who, as a ıber of the executive committee of the rganized New Haven, is a vital force in ıanagement, is one of the most remark- and interesting figures in American :ational life. The public knows him ur greatest academic authority on rail- ls, a political economist of international e, a witty after-dinner speaker, an ɔrd lecturer; to Yale men, however, he bove all cherished as a personality. ugh only fifty-eight years old, and in intellectual prime, he has already become, in Yale annals, almost a legendary figure. Anecdotes cluster about his name as numerously as they do about Dr. Johnson's.

I well remember the day when, as a brand new freshman, I caught my first glimpse of a smallish, wiry, rapidly moving figure on the college campus. It was shooting in and out of the college buildings with the speed of one of Mr. Hadley's own beloved express trains. The extraordinary fact was the nervous activity this figure disclosed in every movement. There was no part of it that was still. I was informed that this was the great Arthur Twining Hadley, the intellectual prodigy of New Haven, the man who, with Professor "Billy" Sumner, made Yale the leading centre in America for the study of political science.

Once started on the subject of Hadley, the well informed Yale man could never stop. His name always started going an inexhaustible stock of stories. How many represent veracious history, I do not know; their literal accuracy, after all, is not especially important; a man's personality and character are almost necessarily reflected in the kind of anecdotes that are associated with him. The mere fact that a man inspires stories in itself tells much.

And the Hadley stories did not begin with Mr. Hadley himself; his father, James Hadley, the great Yale Greek scholar — a man whose name, as the author of "Hadley's Greek Grammar," is anathema to many an American schoolboy — is a considerable source of supply. The elder Hadley, his dog Xenophon, and his cane are now part and parcel of Yale history and Yale mythology. When Arthur Hadley first came into the world, he did not,

according to the New Haven legend, emit the usual preliminary cry; he joyfully uttered a Greek word — *erchomai*, meaning "I have arrived." The elder Hadley, indignant that the precocious boy had made a mistake in the tense, caught him up, gave him a spanking, and corrected: "You should have said *'elthon.'*" This anecdote reflects the reputation for erudition which Mr. Hadley enjoyed. Though his intellectual passion, as a Yale professor, was railroad transportation, there was hardly a subject in the college catalogue that he could not teach. Few professors of mathematics, it was said, knew as much mathematics as Mr. Hadley; the teachers of Latin were frequently astounded at his aptness in quoting obscure passages in Latin poetry; at a moment's notice he could make students of history ashamed of their shortcomings. As a college boy he had taken a large majority of the academic prizes; one of the favorite pastimes of upper class men was to lift young Hadley up on a box and make him deliver an address on any topic they assigned — an ordeal that he always creditably passed through. All European languages he spoke easily; there were few, dead or living, that he could not read with understanding. His attainments, I was informed, were not all strictly scholastic. He had a keen intellectual enthusiasm for almost everything. He was the best whist and chess player in New Haven. He was apt at tennis, a celebrated pedestrian, and an Alpine climber. He was supposed to understand football strategy, at least on the intellectual side, better than Walter Camp; he was fond of discussing baseball, and had one fixed idea, which he would debate for hours, that it would be a better game if played with ten men instead of nine. He was greatly interested in military strategy, and in particular was an authority on the strategic side of Napoleon's campaigns. Incidentally he was a splendid judge of wines. And then came more stories illustrating Mr. Hadley's range of interests. At sea he found amusement in calculating the day's run; on certain occasions he had called the officers' attention to their own mistakes. Once, at the circus, he surprised the elephant-keeper by his encyclopedic information on elephants. On another occasion a Yale professor, about to sail for Europe, told Mr. Hadley that, for greater stability, he was going to take a slow boat with a bilge keel. For the next half hour Mr. Hadley held him entranced with a long dissertation on bilge keels; there was apparently no phase of the subject that he had not mastered.

And there was an unending supply of delightful stories illustrating Mr. Hadley's absence-of-mind. One of the best of these stories was the description of Mr. Hadley telling his Alpine experiences to a group of ladies. As he warmed up, the narrator lost all consciousness of his audience and surroundings; he was in the Alps once more, going up the Matterhorn. As he reached one point in his ascent, Mr. Hadley stepped upon a chair. As he scaled another difficult peak he jumped from the chair to a table. If some one had not called his attention to what he was doing, there is little doubt that, by the time Mr. Hadley's story had reached the summit, he would have been standing on the mantelpiece or the piano.

MR. HADLEY ON THE PLATFORM

It was not until I reached my junior year, however, and had Professor Hadley in economics, that I really learned what an extraordinary person he was. Nearly every member of the class, as I soon discovered, elected this course; Mr. Hadley enjoyed the same popularity at Yale that Woodrow Wilson did at Princeton. In his days as a professor Mr. Hadley's mannerisms were even more striking than they are now. Usually a class of two or three hundred men occupied every available seat in the largest lecture room of Osborn Hall. As the hour struck, the door on one side opened and a slight, wiry figure, shaking with nervous energy, rushed in and ascended the platform at the rate of two or three steps at a jump. He landed with such force that a shudder would go over the class for fear that he might slide off the other end of the platform. Indeed, in the lecture that followed, the enjoyment was somewhat marred by the prevailing apprehension that the professor might suffer bodily injury. The platform was high and

ıd Mr. Hadley threw himself about ost reckless fashion. As he pro- n his argument, he would gradu- 'ance toward the edge. On this times balanced himself on his toes ıtes at a time — the students in ɔmentarily prepared to catch him e toppled over. At the critical , however, he would again strike re of gravity, drop on his heels, and a new acrobatic feat. At one d a post; placing his hand on this, ırer, with outstretched arm, would ; a pivot, while his body, at a dis- ɔerformed indescribable gyrations it. On one occasion, when he was ıt his desk, the story goes, ap- not knowing what else to do with he suddenly thrust them into a ıper basket; it was a tight fit, and he devil's own time trying to extri- n.

PUMP-HANDLE GESTURES

oving picture machine could ever r. Hadley's gestures. His fists were ightly clenched in pugilistic fashion. n — this was the famous Hadley ındle motion — was constantly g an imaginary object in front of ıker; the other was shooting ob- ıp in the air or describing revolutions is head. Occasionally Mr. Hadley ddress the young men looking at t other times he would turn side- ere were periods when he would vith his back actually turned flatly ıss, his hands meanwhile agitating tails. Again, he would pick out an ry spot in the ceiling, and, with rned upward, address all his re- :o it. A favorite undergraduate ıs to bet on the number of times ılley would walk up and down the ı in the course of an hour's lecture. ıparalleled awkwardness struck ople as extreme nervous weakness; y it was nervous force. The man absolutely in the mind that he the slightest consciousness of what was doing. His unceasing mental expressed itself in muscular action; though the brain had not sufficient s to express everything he was thinking — Mr. Hadley thought with his fingers, his legs, his arms, his feet, even with his clothes.

The inadequacy of the physical tenement, as an expression of mind, was also indicated in Mr. Hadley's speech. One tongue was not enough to say all the things that crowded in his brain. While the physical apparatus was discoursing certain ideas, Mr. Hadley's mind was shooting forward to others. As a result, the two forces occasionally became ludicrously confused, and the doctor would get most horribly involved in a long sentence. Once, after getting more than usually tangled up in an interminable paragraph, he stopped suddenly:

"I forgot what I was going to say," he said, laughing uproariously with his class. "I think I'll go back and begin all over again."

No descriptive prose could give an intelligible idea of Mr. Hadley's voice. Only a phonograph could do it justice, or at least a system of musical notation. It is sometimes a New England drawl, at others almost a singsong, at others it is deliberate, calm, and sure of itself; usually the same sentence contains all styles in rapid succession. These characteristics have made Mr. Hadley a favorite subject for imitators. Every college generation has its student who acquires great reputation in this rôle. Mr. Amos Wilder, until recently United States consul at Shanghai, has become immortal in Yale annals for his imitation of Professor Hadley conducting a German recitation. A more recent graduate is in constant demand at Yale dinners. No one enjoys these performances more than President Hadley himself. Indeed, he is keenly alive to the frequently amusing character of his own actions. A year or two ago the Yale Union, the college debating society, invited him to make an address. "I suppose the reason you asked me to speak before you," he began, "was that you wanted the best illustration you could get of how a man ought not to behave himself upon the platform." He also recalls with zest his one appearance, in his early days, as an amateur actor. "They didn't give me any words to speak," he says; "all I had to do was to walk across the stage, but it brought down the house."

Any description of Mr. Hadley's peculiarities, after all, does him an injustice. These things lie all upon the surface. One notices them only at first; after a time, they are entirely lost sight of. For there is a powerful contrast between his physical awkwardness and his intellectual dexterity.

MR. HADLEY'S INTELLECTUAL DEXTERITY

There are no gyrations in his mental processes; there is nothing hesitant or clumsy about his brain. The stupidest and laziest student soon found himself ignoring the professor's manner in his absorbing interest in what the man had to say. In a few days the whole class became as unconscious of these mannerisms as Mr. Hadley himself. He held attention by the directness and vigor of his presentation, his clear, splendid English, his brilliancy of illustration, and his wit. At times the room, except for the speaker's voice, was absolutely silent; at other times there were gales of laughter at some brilliant sally or pointed anecdote. For if Mr. Hadley excels in one thing more than another it is as a story teller. He apparently remembers everything he has ever heard, and has an enormous fund which he can call upon at a moment's notice. And the beauty of his stories is that they always illumine his subject; they are not lugged in merely for themselves, but because they emphasize the point at issue.

HIS HAPPY WIT

One day a visiting clergyman, who was to preach before the students, asked how long he was expected to talk. "Of course, we put no limit upon you," replied President Hadley, with his usual pump-handle gesture, "but we have a feeling here at Yale — that no souls — are saved — after the first twenty minutes." At another time he was addressing the graduate body on a new building programme which called for a large expenditure. In the midst of his eloquent appeal for financial support there came a terrific peal of thunder. "And like the old Greeks," concluded Mr. Hadley, as soon as the noise died away, "having heard the voice of Zeus in approval, we can say 'the thing is done.'" The way he asked his prospective father-in-law for permission to marry his daughter was also characteristic. At the time, this gentleman, Luzon B. Morris, occupied an anomalous political position. He had recently been elected governor of Connecticut, but his claim was disputed and the state was in a political turmoil. "Mr. Morris," was the way Mr. Hadley approached the subject of his call, "I hope that I — at least — may be permitted — to call you — governor." Another episode at the Yale bicentennial in 1901 illustrated the readiness of his intellectual resources. One of the distinguished guests was the representative of the University of Upsala in Sweden. This gentleman, when received by President Hadley and the corporation in the reception room of the Art School, delivered a long address in Latin. As soon as he had finished, President Hadley made a lengthy reply, also in Latin. He had prepared this Latin address himself with only an hour or two of warning!

"Well, well," said Chauncey M. Depew, — at least the story represents him as saying — "I never knew that President Hadley could talk Swedish!"

A NEW ENGLAND CONSERVATIVE

This Latin episode shows that President Hadley has many scholastic attainments of the old fashioned kind. Indeed, despite his cosmopolitan experience and far-reaching intellectual interests, the New England note is the dominant one in his character. In subject matter Mr. Hadley is a modern of the moderns; in attitude his mind is distinctly conservative. As the first president of Yale who was not a Congregational clergyman, Yale men acclaimed his installation as the heralding of a new era; but New England conservatism is mingled considerably in Mr. Hadley's progressivism. His father was a professor at Yale; his grandfather was a professor in a New York medical institution; one uncle was a professor of Hebrew at Union Theological Seminary, and another uncle was professor of chemistry at the Buffalo Medical College. Arthur T. Hadley himself was born under the elms; the Yale students celebrated the event by burning red fire before his father's house: his life as a child was spent almost literally

on the Yale campus. Perhaps it is not surprising that, under these circumstances, Mr. Hadley's mind reflects the New England ideal. He has passed beyond the dogmatic stage, but President Hadley is a deeply religious man; Yale University is as much a Christian institution under him as under Dwight and Porter. He is a member of the Congregational church, regularly goes to communion, says grace at his own table, and preaches fervent baccalaureate sermons. We could hardly imagine President Hadley, like President Eliot, making a god out of electricity or primal force.

And likewise, in his attitude toward economic problems, this same New England spirit comes out everywhere. In his makeup there is little standpattism; but the note is always the conservative one. Henry George found one of his hardest antagonists in the youthful Arthur Hadley. Among his earliest successes at Yale were the lectures which he delivered against the ideas of Henry George. On all occasions he has written and spoken against Socialism. Indeed, an old fashioned respect for property informs all his writings. In the American Constitution he admires chiefly the function performed by the judiciary. This is the influence, he says, which has acted as a balance against the dangers of an enfranchised populace, and made property secure — in fact, saved democracy in America from the failures that have disfigured it in other lands.

And it is characteristic that he proposed a genuinely Puritan treatment for those who abuse the trust of great fortunes. This proposed treatment was "unsparingly refusing to associate" with them. His remedy for social ills is not legislation, or the use of nostrums; it is the cultivation of a better public conscience. New Haven believes that, in the last election, Mr. Hadley voted for Mr. Taft. Incidentally Yale, of which Mr. Taft was a graduate, and Princeton, which was Mr. Wilson's college, were lined up in an interesting way in this election. Most Yale professors voted for Wilson and most Princeton professors voted for Taft!

In the department in which Mr. Hadley has won particular fame this same New England conservatism has controlled. As an authority on railroads President Hadley has held a unique position for thirty years. When he began the study of political economy, as a young man of twenty-three, the science meant largely foreign trade and banking. Mr. Hadley's mind, however, immediately turned to two branches that had hitherto had little scientific attention: railroads and labor conditions. His book, "Railroad Transportation: its History and its Laws," representing the first serious attempt to analyze practical railroad problems, created little less than a sensation. A year after its publication, it was commended in the House of Commons as the greatest discussion of the railroad problem ever made. Translations immediately appeared in all European languages; two were published in Russian, one of which was made at the order of the Czar for the benefit of the Czarevitch, the present Czar. Even so practical a railroad man as E. H. Harriman declared that he had acquired much of his knowledge of railroads from this book. This work touched upon all the railroad problems that have agitated the country ever since: reckless competition, long and short hauls, discrimination in rates against individuals and communities, pooling, regulation, and so on. The Granger movement, through which the Nation had just passed, furnished the young economist plenty of material.

HIS STAND AGAINST RATE REGULATION

From that day, whenever the railroad situation has become acute, Mr. Hadley has been appealed to for advice. Committees of Congress, Presidents, railroad men, newspapers, and magazines have constantly turned to him. In the Senate investigation of 1886, which resulted in the first Interstate Commerce Act, he was constantly at Senator Cullom's elbow. Senator Orville H. Platt's famous speech against the anti-pooling clause was practically Mr. Hadley's work; Senator Platt said so in the speech itself. There was a strong movement on foot to make Mr. Hadley a member of the first Interstate Commerce Commission; had political considerations not intervened, it would have succeeded. Since then Mr. Hadley has figured largely

as a national adviser. His latest work was as chairman of President Taft's commission on railroad securities.

Notwithstanding that Mr. Hadley, for a generation, has been our foremost academic authority on railroads, it can hardly be said that he has exercised any great influence in definitely formulating national railroad policy. The railroad policy of the American people, as it stands to-day, flies in the face of his recommendations. There is probably no fact so nearly settled, for example, as the control of railroad rates by governmental authority. President Hadley has never favored this. He opposed the plan in 1886, when certain reformers wished to make it part of the Interstate Commerce Act; he opposed it in 1906, when the Hepburn Act, conferring this power, was up for consideration. He used essentially the same arguments on both occasions: Similar attempts, he said, had failed in England; and he recalled Charles Francis Adams and the old Massachusetts commissions. Mr. Adams's work, he argued, demonstrated that a commission merely with powers for investigating and advising could accomplish far more than one that had power actually to determine prices. In a comparatively recent essay he said: "I believe that the Interstate Commerce Act did more to prevent wise railroad regulation than any other event in the history of the country." In 1906, when discussing the Hepburn bill, he said that "evil and not good will come from the Hepburn bill," and prophesied that in a few years it would be repealed. Perhaps Mr. Hadley was right; he probably sees in present conditions a good deal to justify his pessimism; this view, however, does not control American railroad policy. In this attitude, the old New England conservatism speaks again; a conservatism that characterizes the official atmosphere of Yale to-day as fully as an unbridled democratic feeling does that of the University of Wisconsin.

HIS WORK AS LABOR COMMISSIONER

In matters that more immediately appeal to his sympathies, however, Mr. Hadley is more "progressive." Perhaps the most delightful chapter in his life is that which covers the two years, from 1885 to 1887, when he served as Labor Commissioner of Connecticut. Those were pretty lively times. "Any one who thinks that the labor situation is acute now," says Mr. Hadley, "should go back to 1885, when the Knights of Labor were in their prime. They controlled things as no body ever has since. I remember that in those days there were only two lawyers in the Connecticut assembly — the speaker and the chairman of the judiciary committee. The reason was that the Knights of Labor hated lawyers and none could, therefore, be elected. They grouped together 'lawyers, loafers, and rum sellers' as persons to be discriminated against." Strikes and boycotts then were taking place every day, many of them exceedingly effective. This turmoil seemed hardly the place for a young college professor; indeed, there was much amusement at first at the appointment of Mr. Hadley. But he attacked his problem in an intensely human way. He became acquainted, first hand, with the labor leaders. "Many of them," he now recalls, "were very interesting and able men, and I learned a lot from them. The more men you know the better political economist you are." Wherever there was a labor disturbance Mr. Hadley was early on the scene. His really valuable work, however, was in investigating factory conditions. He had no clerks or expense accounts, and had to travel all over the state, going through the mills, talking with proprietors and operatives, noting abuses and suggesting remedies.

His two reports — documents that acquired almost as much fame in their field as his "Railroad Transportation" did among railroad men — have a distinctly modern ring. Those people who are engaged in campaigns for the improvement of factory conditions could almost use these volumes as text books to-day. Thirty years ago, long before the present "child labor" movement started, Mr. Hadley had sounded this note in Connecticut. Clearly the things which he saw in the mills of Connecticut stirred him deeply. "It means," he wrote, "that these children are growing up without the advantage of regular education. It means that there is danger of physical deterioration and little

chance of intellectual improvement. It means an addition to the ranks of unskilled labor at present at the expense of the higher development of those laborers in the future. It means that the community is more anxious to increase the quantity of its products than the quality of its citizens. It is better to have a state with a small number of strong men and women than a large number of weak ones." He made pleas for shorter hours, better sanitary conditions, and adequate protection against accidents — reforms that have since been generally adopted in factory legislation. At that time workingmen in Connecticut had two serious grievances. One was the prevailing system of paying wages monthly. Another was the practice known as "factorizing" — that is, levying on a workman's wages for debt. Mr. Hadley took the workman's side in both matters, and showed, in great detail, their practical evils. In both his contentions he won his point, as legislation was adopted that did away with these abuses.

THE NEW HAVEN AND THE GOLD SUPPLY

After all, however, Mr. Hadley's lasting enthusiasm is railroads. He is as keen upon the subject now as he was thirty years ago. And his experience is almost unique in that, after having acquired a great reputation as a theoretical student, he now has the opportunity to test out his ideas in practice. His explanation of the difficulties of the New Haven road strikes one at first as somewhat academic. "If we look for the final cause," he told me, "we shall find it in the increase in the world's gold supply." What he means, of course, is plain enough. Many economists, including evidently Mr. Hadley, explain the increase in prices, and the consequent higher cost of living, by the huge additions that have been made in fifteen years to the world's supply of gold. That is, the purchasing power of the dollar is much less than it was; and that is only another way of saying that prices are generally higher. Like all railroads, the New Haven has been hit hard by the increased wages, increased cost of supplies, and other similar items. On the other hand, the Interstate Commerce Commission has — at least up to the present writing — vetoed an increase in rates. These two sets of circumstances, in Mr. Hadley's view, largely explain the New Haven's troubles.

"Mr. Norris, of Nebraska," said President Hadley, "recently declared that $200,000,000 had been abstracted from New Haven values in the last few years. His statement was correct but he did not add, what was the truth, that this large value had been abstracted by the arbitrary acts of the United States Government. In practically compelling the road to raise wages, and refusing it the right to increase rates, it has caused a net loss of $9,000,000 a year. The governmental policy regarding the parcel post — in paying us inadequately for the service, and in the loss from express company receipts — nets us an annual loss of $1,000,000. There are other indirect losses amounting to another $1,000,000. So here we have a total loss of $11,000,000, which is 5½ per cent. on $200,000,000, which, you observe, is exactly the figure Mr. Norris named."

Not that Mr. Hadley thinks that the road has not made mistakes. In purchasing the Boston & Maine Railroad, Mr. Mellen obtained a "gold brick." Mr. Hadley criticises the purchase of the trolleys in Rhode Island and Massachusetts; not, however, on the ground which makes the act so obnoxious to Mr. Brandeis. That they possibly eliminated competition in certain sections, or tended to establish a railroad monopoly, does not disturb Mr. Hadley. His great work on "Railroad Transportation" gave much space to demonstrating the futility of railroad competition. Nor does the fact that the capitalization contained liberal quantities of what some people call "water" affect his judgment. Mr. Hadley thinks that much cant is talked on the subject of "watered stock" — that the whole thing is vastly misunderstood. No, he objects to the purchase of the trolleys in Rhode Island and Massachusetts simply because Mr. Mellen made a bad bargain. He paid more money than they were worth. The properties show no return on the money invested in them — rather the reverse. On the other hand, he approves the purchase of the trolleys in Connecticut, be-

cause they do show such a return. Mr. Hadley, with President Elliott, conducted the negotiations with Attorney-General McReynolds that ended in the settlement of the Government's suit. It is hardly likely that the result was especially palatable to him. The settlement forces the sale of practically all the outside properties which Mr. Mellen had added to the road. Mr. McReynolds even proposed that they go back and resuscitate the old New England Railroad — a rival line the New Haven absorbed twenty years ago — as an independent property. Mr. Hadley and Mr. Elliott, however, obtained this much mercy — the New Haven and the New England will not separate.

AS A COLLEGE PRESIDENT

It seemed almost a pity to take Mr. Hadley from the work of a teacher and make of him a mere university president. The man is essentially a thinker, not an administrator; an intensely virile and stimulating human being, not a cold-blooded matter-of-fact executive. It may safely be said that he has no taste for the ordinary dry routine of official college work. He has none of the brutal fanaticism that sometimes seems essential in the reformer; the very openness of his mind, and its tendency to play with all phases of a question, in themselves interfere with any hard and fast policy. Indeed, in any narrow sense, Mr. Hadley does not seem to have had any policy at all. He is not a university head like President Eliot and President Wilson; he does not map out a course and ruthlessly pursue it, either destroying all his enemies or destroying himself. In its relations with its president at least, Yale is a very democratic institution. Unlike President Wilson, he has no panacea for the social ills of undergraduate life; he leaves it to the students to work out their own salvation. Unlike some other distinguished college heads, he makes no attempt to tyrannize over the faculties.

In certain very definite ways, however, Mr. Hadley is a powerful force at the University. As an individual he stands preeminently for two things. In the first place he is a man of great intellectual distinction. In pure cultivation, there is probably no university head in the United States to be compared with him. In the second, he is a man of the highest moral ideals. And, under him, life at Yale has improved in both these directions. President Hadley, tolerant as he is in some things, will not tolerate slipshod work in his professors or his students. Under him Yale is primarily a place for education in the most liberal sense. He will admit none except first rate men to the faculty; he will leave a professorship vacant for years rather than fill the chair with an inadequate man. As a result the scholarly tone of the place is higher now than ever. One of the most-sought-for undergraduate honors at Yale to-day is an election to the Elizabethan Club — an organization of small membership to which literary and intellectual prominence is the only avenue. The Yale Medical School, which fifteen years ago was a negligible institution, is now rated by the American Medical Association as one of the two in New England worthy of survival — the other, of course, being Harvard. The Yale Law School, in President Hadley's time, has become one of the best in the country. Other evidences of the new intellectual spirit are the *Yale Review*, a periodical that has been referred to by Henri Bergson as "the best magazine published in America," and the Yale Press, a publishing house sponsored by the University. That the moral tone of the undergraduates constantly improves is also the general testimony. There is much less drinking, much less riotous living — and Yale always compared favorably with other colleges in this respect — than there was fifteen or twenty years ago.

In certain externals the place does not seem so plain-living as it was; material prosperity is manifest everywhere — under Mr. Hadley the endowment has increased from $7,000,000 to $17,000,000; there are many beautiful new buildings, there are more ornate college rooms, there are automobiles and other luxuries; many signs of that increase of wealth against which Mr. Hadley warned the University in his inaugural address. Already there are signs of rebellion; the same social unrest that prevails in the "outside world" is now agitating the undergraduate body.

ARTHUR WOODS

D THE POLICE COMMISSIONERSHIP OF NEW YORK — A NATIONAL JOB

HE police commissionership of New York is a national job. The way it is conducted determines in a large measure the success or failure of Amer-
.rgest experiment in city govern-
or the rock on which good govern-
olits in New York, and other large
s usually the police department.
ie country watches Mayor Mitchel
e eye it should watch Arthur Woods
e other.

new Police Commissioner is a new police commissioner. Unlike three predecessors, Mr. Bingham, Mr. , and Mr. Waldo — the first two 'ointers and the third a veteran of nish War — he has had no military ice to fit him for a command which : respects is military in character. others of his predecessors he has ie to the control of the Police De-
nt through channels of public life. Woods is neither a military man olitician. But in a big new sense born police commissioner.

he day in April when Mr. Woods 'er the office from Acting-Commis-
McKay, he closed up his desk in City Hall and, as secretary to the said good-bye to his chief.

going up to Headquarters now to :he new job," said he, holding out i.

Mayor stood up and gripped it hard. big fool," he said slowly. "Good you!"

when, a few hours later, the cere-
f swearing in had been gone through : commissioner's room was cleared reporters and photographers who vered" the event for the afternoon , and the new chief was left alone to task, he found a card with a big f red roses on his desk. On the as written, "With the enduring of the Harvard Club." That was of the funeral of Detective *Joseph* Guarnieri, one of the ablest officers in the force, who had been shot in the brave performance of his duty. Mr. Woods kept the card and sent the roses to Guarnieri's house. The incidents attending the attempted shooting of the Mayor on April 17th are still fresh in people's minds. It was Mr. Woods who first marked the would-be murderer and, immediately jumping at him, prevented the second shot which might have been fatal.

Better than a lot of description, these incidents define the man. He is the kind of "fool" who turns from the easy life his generous private income assures him, and from the congenial lighter tasks of his former office as secretary to the Mayor, to four years of trouble. He is not in this job for anything he can get out of it but for what he can put into it. The loyalty of his friends in the Harvard Club is characteristic of all his friends, and most of his acquaintances are his friends. The boys who were at Groton School during the eleven years of Mr. Woods's mastership remember him as the strongest personality among the younger masters, and several of them owe to him the influences which shaped their school days and started them right on the long road through college into a world of work and service. Joseph Guarnieri was his friend. If he has faults they are the generous faults of enthusiasm and eagerness. A safer type, perhaps, is the kind of silent man who sits back in the shadows and bosses the undertaking, whatever it may be. No shadows for Mr. Woods. He wants to touch his territory first hand, believes in keeping headquarters close to the firing line. His physical alertness, which probably saved the Mayor's life, is characteristic of a decision equally quick in other respects.

If you were to ask the chief of the Police Department he would tell you that he would rather have his present job than any other he can think of. For he has really always been a police commissioner in the

sense in which he now approaches what he considers the possibilities of his new office in the government of New York City. In temperament he is objective, solicitous, a regulator by instinct. In character he is a charitable disciplinarian of the later-day type who put not their faith so much in rules and ordinances as in positive principles. And nearly all his experience has been of a kind to fit him as the physician of other people's affairs, to make him his brother's keeper, which in the last analysis and on an enormous scale is just what a police commissioner ought to be. At Groton they used to call him "Doc" Woods, not because he knew any materia medica, but because he was always trying to help people out of their difficulties.

Mr. Woods's people have always been New Englanders of the home-staying type: doctors, teachers, preachers, one of them the founder of Andover Theological Seminary. He and an older brother, who has lived many years in India, are the only wanderers of them all. In the public schools of Boston he got a sound elementary education and was graduated from Harvard College in 1892.

From school teaching to politics in New York City seems a long step, but the same attitude of mind which had made Mr. Woods a regulating force at Groton took him straight into the reform side of municipal affairs when, after a trip around the world with the Taft party in 1905, he found that he had outgrown his academic life. He prevailed with men as he had with boys. He got to know the city as a reporter on the *Evening Sun* and, as secretary of the Citizens' Committee, made a special study of the police, his findings contributing to a bill now in effect as law. General Bingham created the office of fourth deputy police commissioner and put Mr. Woods in charge of it; and in this capacity, from 1907 to 1909, he entirely reorganized the detective branch of the department and through its increased efficiency was able among other things practically to stamp out the Black Hand which had periodically terrorized the East Side. General Bingham's forced resignation took Mr. Woods's with it, for the deputy was loyal to his commissioner; and the chief of the detective force went out to Mexico as director-manager of the Colima Lumber Company.

The two years in Mexico brought a particularly interesting experience, for in addition to his commercial development projects he became associated with Francisco Madero, whom he advised in several matters of policy and regulation and, as is not generally known, drew up a series of recommendations for the Mexican president which, had they been adopted at once, might have continued him in power.

When the present revolution began Mr. Woods had already been obliged to leave Mexico, because of his father's death, to take charge of the affairs of Joseph W. Woods & Sons. Of this manufacturing concern he is still the treasurer.

But no amount of commercial prospects could keep him away from New York when the last reform campaign began. As secretary and adviser to John Purroy Mitchel he took a leading part in landing the Fusion candidate in the mayor's office, and the new chief executive's dependence upon his services was at once recognized by his appointment as secretary to the mayor, a position which he relinquished only to take up the responsibility which he now holds.

In assuming these responsibilities the new commissioner has a far larger conception of the field before him than the office has hitherto defined. One of the daily papers hit at the idea in a heading which read, "Woods To Bring Police Department into the Uplift." That is just the wrong way of expressing the truth. Mr. Woods is trying in a practical way to bring uplift into the police department. He is not going to be content merely with the detection and punishment of crime. He is thoroughly in step with the times in his endeavor to head off the tendencies to crime or to block the initial stages of criminal action before its actual commission; in his determination to link up his department with all the other organized forces in the city which are working for better health and sanitation, social betterment, and education in its broadest applications. It is his firm belief that improved conditions in public morals cannot be achieved by repression without the influence of a genuine civic coöperation.

THE NEW ILLUMINATION

SAVING A NATION'S EYESIGHT BY METHODS OF LIGHTING THAT DIFFUSE THE LIGHT AND ELIMINATE ITS GLARE — THEIR EFFECTS ON THE COMFORT OF THE HOME AND ON THE EFFICIENCY OF INDUSTRY

BY

CLARA BROWN LYMAN

NINETY per cent. of the blindness and defective eyesight in this country could have been prevented, and a shockingly large proportion of it has resulted from wrong lighting conditions. These are conclusions that years of study have forced upon the New York committees for the prevention of blindness and defective vision and similar organizations that are now active in most of the states.

Such statistics and the propaganda of the Illuminating Engineering Society, which had been hammering away at the public for years, finally aroused the attention of a considerable part of the commercial world about six years ago, because it had at last been proved to them that bad lighting conditions in factories and shops meant less efficiency among their workers, with subsequent loss of money through decreased output. They put experts to work on the problem which to-day is approaching a satisfactory solution. So it is to economic necessity that we owe the wonderful lighting reforms that have been brought about primarily for the benefit of the industries and that now are being rapidly applied to the lighting of public buildings and homes.

The misfortune of yesterday was not enough light; the mistake of to-day is too much light, light that is badly placed and wrongly used.

As soon as it was possible to turn night into day by the use of gas and electricity, the factories did so. They were not sparing with it, either, and generously put an individual light over each machine so that the worker might have all the light necessary to see by. It is largely this individual machine lighting, however, that has worked such havoc with the eyesight of the all-night toilers, especially as, at the beginning, the light sources were not even shaded. Flickering, open-flame gas burners throw deceptive shadows and the eye muscles have continually to contract and expand in order to meet the strain thus put upon them. Unshaded electric lamps, though steadier, are like miniature suns shining directly into the eyes. More than that, they were, at first, hung by cords that swung to and fro at the merest touch and caused added irritation.

To get away from the necessity for this individual machine lighting, to invent a system of such diffusive power as to admit of its being installed overhead, to find a light that would give a steady, even illumination and approach daylight in value as nearly as possible, has been the goal of the lighting scientists of to-day. The various steps in the progress are full of interest. First came the mercury vapor tube light in the form of long glass tubes containing mercury vapor which, when volatilized, glows with a greenish light. These tubes are installed around the walls of a room, just below the ceiling or across the ceiling itself, and in every part of a room so illuminated, no matter how large it is, every worker can see equally well, so searching and powerful is their diffusion. There is no glare from this kind of light, and there are no deceptive shadows. As its principal characteristic is that it makes black stand out against white as though in relief, it was particularly effective in the printing trades and in post offices, where it is now used to a considerable extent. Among the first installations were the old New York post office on City Hall Park and the pressrooms of one of the big New York dailies nearby, where the weird green glow is still, nightly, a source of wonder to the

passing throngs. When this light was first installed there, letters of protest poured in from all quarters from kindly disposed but uninformed people who were sure that the workers would all be blind within a month.

Far from being hard on the eyes, however, the mercury vapor tube light is actually restful to them, because there is no strain in order to see. But, because it contains no red rays, it is impossible to distinguish colors under it and so, for trades which involved working with color, a new form of tube light was next invented, known as the nitrogen vapor tube, that gave a light that was pinkish in tone. But the present-day lighting genius who invented it was not satisfied until he produced the carbon-dioxide tube light, whose bluish-white radiance is practically daylight so far as colors are concerned. Within the last year, a new form of "daylight lamp," as it is called, has been put upon the market in the shape of individual fixtures which can be installed in stores and shops where it is necessary to use artificial daylight a greater part of the day. These fixtures contain either a special upright gas mantle or a tungsten lamp, beneath which is a "daylight screen" of colored glass which has the properties of selecting and screening out of artificial light all the colors which tend to destroy its daylight properties.

And now that we have arrived at what is practically daylight in artificial lighting, it is difficult to convince the public that it will do what is claimed for it and that it is not hard on the eyes. One of the lighting companies of New York City did a clever thing to convince its patrons of the value of the new invention. They installed what they called a daylight-making machine in one of their display windows. This was simply one of the gas daylight producers, installed in a cabinet through which was run a band of ribbon made up of several colors. One end of the ribbon was left outside the cabinet next the window where it had actual daylight, and the crowds who stopped to view the phenomenon could see that the ribbon appeared exactly the same on both sides of the cabinet; yet they were skeptical. "You can't tell me," I overheard one woman say. "That's just two different pieces of ribbon." And so many people said this that the company finally put a demonstrator in the window and had him remove the ribbon from the box periodically, to show the crowd that it was really what they claimed.

Other systems of lighting were meanwhile worked out that might be applicable both to commercial and domestic use. The gas and electric light companies put their experts to work on improvements, and the inverted mantle and the tungsten lamp soon replaced the old-time open-flame gas jet and the inefficient incandescent lamp. There was too much waste of power with these old lights and not enough result. The newest mantles and lamps produce a light that is whiter, more brilliant, and far more effective than the old yellowish tone that the illuminants formerly had. They give colors practically their normal values; and they cut the cost of lighting, while giving better quality. But, wonderful as they are, they are worse than useless — they are actually harmful — unless they are properly shaded and rightly placed in relation to the eyes.

With these facts in mind, three new systems of illumination have been evolved for both gas and electricity: the "concealed," the "indirect," and the "semi-indirect," each based upon the principle of light diffusion from a white ceiling. The old system, with which we are all familiar, is known as the "direct," because the light is shed directly downward.

The object of the newer methods is to keep the illuminating source away from the range of vision and so to diffuse the light that every part of a room will be equally well lighted. Meanwhile, the "direct" system has been improved by scientific placement of the fixtures, and by the use of specially designed glassware for shades and globes and of frosted tipped electric lamps and gas mantle cups as a further protection for the eyes, for the whole modern thought in lighting is to avoid glare and give the eyes a chance to do their work under normal conditions. Each of these modern methods can be applied to

the lighting of the home as well as to commercial illumination.

The "concealed" system takes its name from the fact that the lights are installed behind cornices, around the tops of pillars, back of glass skylights or domes — in all cases, as near as possible to the ceiling. Powerful incandescent lamps are set in special reflectors which throw the light upon the ceiling, whence it is evenly diffused throughout the room. The charm of this kind of illumination is that the source of the light is wholly invisible. It is exactly as though the room were flooded with daylight. No fixtures are necessary with this method, and it is wonderfully effective in public buildings, churches, theatres, art galleries, schools, anywhere in fact, where a large area is to be illuminated in such a way that people can see in any part of it without the necessity for using as great a number of fixtures as would otherwise be necessary.

The "indirect" system was invented about five years ago by an illuminating engineer in Chicago who, while experimenting to find something that would diffuse light and yet keep it away from the eyes, tried turning the shades on his fixtures upside down. The effect led him to see the possibilities of using the ceiling as a diffuser of light and resulted in his working out the indirect method. In this, fixtures of a cup or bowl-like shape are used, hung from the ceiling by chains or rods. The container is entirely opaque, either of metal or some metallized substance that prevents any light from coming through, and forces it against the ceiling by means of powerful reflectors with which

A RIGHT WAY AND A WRONG WAY TO USE LIGHT

IN THE PICTURE AT THE LEFT, THE WORKMAN'S EYES ARE SHADED AND ALL THE LIGHT IS CONCENTRATED ON HIS WORK; IN THE PICTURE *AT THE RIGHT*, THE WORKMAN IS BLINDED BY THE GLARE WHICH NOT ONLY IRRITATES *HIS EYES BUT MAKES IT HARD FOR HIM TO* SEE WHAT HE IS DOING

THE "DIRECT" SYSTEM OF LIGHTING AT ITS WORST

UNSHADED LAMPS SUSPENDED AT THE LEVEL OF THE EYES, WHICH THUS CANNOT ESCAPE THE GLARE, AND HANGING BY FLEXIBLE CORDS SO THAT THE SLIGHTEST TOUCH PRODUCES FURTHER IRRITATION TO THE EYES BY MAKING THE LIGHTS DANCE BEFORE THEM

DIRECT LIGHTING IN A DEPARTMENT STORE

AN IMPROVEMENT ON THE CONDITIONS THAT ARE SHOWN IN THE PICTURE ABOVE, BUT FAR FROM IDEAL BECAUSE *THE GLARE REMAINS AND BECAUSE* HEAVY SHADOWS ARE PRODUCED BY THE DIRECT RAYS OF LIGHT

the container is lined. In some types, the container has a highly glazed enamel lining which acts as a reflector. By this method, the light is diffused evenly over an entire room, lighting up the corners and enabling every one in the room to see equally well. The effect of this kind of lighting is interesting to watch. There are no puckered brows, no strained look on the faces of people who are reading or working in a room so illuminated. The eyes and nerves have involuntarily relaxed and a feeling of well-being and repose *that must* be experienced to be appreciated takes the place of the high-strung, overwrought, nervous state induced by glaring, unshaded "direct" lights.

The "semi-indirect" system, a more recent development, employs translucent glass bowls in place of the opaque material, though the principle is practically the same. Here, some of the light filters through, shedding an agreeable glow upon the room; some of it is reflected upward against the ceiling, as in the indirect system, by means of the specially designed

THE SOFT LIGHT THAT IS DIFFUSED BY THE "INDIRECT" METHOD
WHICH PRODUCES A RESTFUL GLOW OF UNIFORM INTENSITY IN ALL PARTS OF THE ROOM, EQUALLY FREE FROM GLARE AND FROM DEEP SHADOWS

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A BADLY LIGHTED LIVING ROOM

IN WHICH THE EYES ARE HURT BY THE DIRECT RAYS OF LIGHT FROM THE CEILING AND FROM THE TABLE LAMP

reflecting inner surface of the glassware. Mother-of-pearl, onyx, marble, and alabaster are also used for "semi-indirect" lighting. No portable lamps or wall lights need

SEMI-INDIRECT LIGHTING IN A BEDROOM

A RESTFUL CONTRAST TO THE GLARE IN THE LIVING ROOM THAT IS SHOWN IN THE PICTURE ABOVE

be used with either of these methods, for one can see to read or work in any part of a room so illuminated; yet a great many people have the illusion that they cannot see by these indirect lights and feel the necessity of a table lamp set right near them, just as the old fashioned folk could not get used to radiators for heat; they wanted a good old fireplace to get warm by, although they knew perfectly well that they roasted in front of it and froze if they left it for a moment to go to any other part of the room.

Any kind of artificial lighting that produces glare is wrong in principle and its effect upon the eyes will be felt as inevitably as though the sun were hung in the room just at the line of vision. A fixture over a polished table or in front of a mirror is as hard on the eyes as sunlight on white sand; indeed, it has much the same effect. The lights in a central chandelier of the direct type, hung low, burn the eyes and heat the brain; yet people will wonder what gives them headaches in a dazzlingly lighted room. It is a strain to *distinguish* people or objects in a room lighted in this way, yet you will see people shading their eyes with their hands while trying to read or work, and attributing the eye strain they feel to everything else than their "artistic fixtures." More often than not, such fixtures, though perhaps having shades for the light sources, will have the lamps or gas mantles protruding above or below the edge of the shade, where the eye cannot possibly escape them. In a mistaken effort to have a room brightly lighted, shades and globes of clear glass are often used, again subjecting the eyes and nerves to torture, and wasting lighting power. The lesson must be learned in the home as well as in the factory that the eye can see less with a brilliant, unshaded light source than it can with less light well protected.

IDEAL LIGHTING IN THE HOME

BY THE INDIRECT METHOD, WHICH ELIMINATES ALL GLARE FROM DIRECT RAYS BUT WHICH NEVERTHELESS SUPPLIES ADEQUATE LIGHT FOR READING IN ALL PARTS OF THE ROOMS

Unless the indirect systems are used, great care must be taken in regard to the position of lighting fixtures in relation to the eyes. Overhead fixtures must be hung high above the line of vision, and the sources of light must be well shaded. Wall brackets are so many bright points

of light which the eye cannot escape. Unless scientifically installed, the glass domes over dining or library tables are apt to be sources of eye strain, for they throw a blinding glare down upon a white or polished surface which is reflected up into the eyes with all the effect of snow blindness in miniature. When they are fringed, as they often are, the effect is even worse, for then strings of light and shadow are thrown across the field of vision. The same is true of portable or table lamps. Any practical use of a lamp that is concealed by a fringed shade is like trying to read through a wire screen. And to use leaded colored glass shades for reading or working would have about the same effect upon the eyes as reading through a stained-glass window by twilight.

Even in the business world, people are just as careless about lighting conditions as they are in their homes. In many an office, men sit at glass-topped desks, a shaded lamp, perhaps, directly in front of them, and then wonder why their eyes tire so soon, when all the time the reflection of the light shining down underneath its shade upon the polished surface of the glass is dazzling the eyes and tiring the brain. Since the new powerful tungsten lamps have been put upon the market, it has been a common sight to see them hung shamelessly unshaded directly over a desk or used in a portable lamp placed in front of the eyes. Even the "seats of the mighty," it seems, are not blameless in this regard. Only recently, on the occasion of a visit to the office of the Mayor of New York (who, by the way, is said to have offered a reward to any one who can cure his headaches), the writer sat in his anteroom, talking with his secretary on this very subject of lighting as applied to certain civic questions. Mr. Cruger had expressed himself as especially interested, inasmuch as he had suffered so much from his eyes and wondered if it could be that the lighting of the offices in the City Hall had anything to do with it. I glanced up. We were sitting directly under a cluster of bare tungsten lamps, set against a powerful reflector!

A FIXTURE THAT DOUBLES THE STRAIN ON THE EYES

BECAUSE THE STRONG GLARE FROM ABOVE IS REFLECTED FROM THE WHITE TABLE CLOTH AND DISHES, SO THAT THE EYES CANNOT ESCAPE THE POWERFUL DIRECT RAYS OF LIGHT

A LIGHT THAT MAKES HEADACHES INEVITABLE

BECAUSE THE DIRECT RAYS CAUSE EYE STRAIN AND THE HEAT FROM THE LAMP BRINGS THE BLOOD TO THE HEAD

The new illumination is revolutionizing the methods of factories and department stores. It is increasing efficiency there, and in offices as well. In the homes, it is bringing about a new era of comfort. And it is working powerfully to save the sight of men and women and children wherever artificial light is used.

AN EFFICIENTLY LIGHTED OFFICE

IN WHICH THE LIGHT IS STRONG ENOUGH FOR ALL PRACTICAL PURPOSES BUT SO SOFT THAT THERE IS NO STRAIN ON THE OPTIC NERVES

THE SPIRIT OF THE PARCEL POST

THE PARCEL POST HAS ADDED SOMEWHAT TO THE LABORS OF MAIL CARRIERS IN THE CITIES, ESPECIALLY DURING THE HOLIDAY SEASON

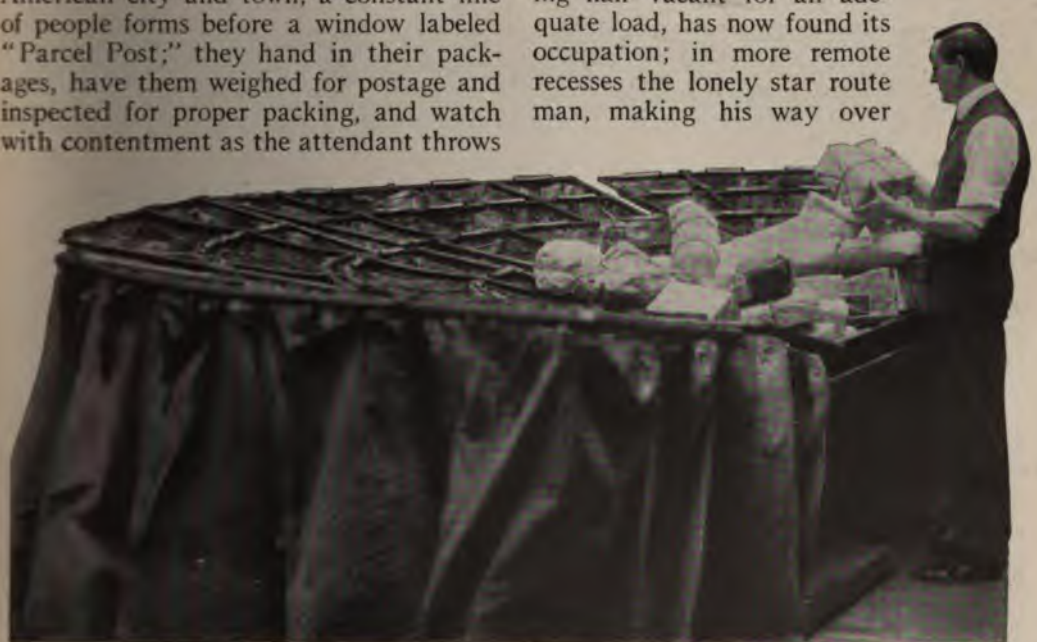
UNCLE SAM, EXPRESSMAN

THE PARCEL POST AFTER EIGHTEEN MONTHS OF TRIAL — HOW IT HAS ALTERED THE RELATIONS OF THE CITIES TO THE COUNTRY AND WHAT IT HAS DONE FOR PEOPLE THAT LIVE IN MORE REMOTE DISTRICTS — ITS EFFECT ON THE RAILROADS AND THE EXPRESS COMPANIES

BY

JAMES MIDDLETON

WELL, the thing has finally been done: after more than thirty years of unceasing agitation, ordinary articles of merchandise and domestic use can now be deposited in the United States mail. An effective parcel post is no longer merely a favorite subject for magazine discussion and high school debates; it is a practical, accomplished fact. In every American city and town, a constant line of people forms before a window labeled "Parcel Post;" they hand in their packages, have them weighed for postage and inspected for proper packing, and watch with contentment as the attendant throws them into a large receptacle, which, when full — and it fills with amazing speed — is wheeled off to the mailing department. Every city letter carrier shows evidences, in a somewhat more bulkily filled shoulder bag, of the new dispensation; and brightly painted "screen wagons" and automobiles, packed to capacity with miscellaneous bundles, are dashing through every city street. On every country road the wagon of the rural carrier, for many years yawning half vacant for an adequate load, has now found its occupation; in more remote recesses the lonely star route man, making his way over



MORE CLERKS, LESS "OVERHEAD EXPENSE"

THE INCREASED BUSINESS, AT GREATER PROFITS, THAT THE PARCEL POST HAS BROUGHT TO THE POSTAL SERVICE MORE THAN PAYS FOR THE EXTRA LABOR IT ENTAILS

mountains and through forests on horse, mule, wagon, stagecoach, or even snow shoes, plays his part in advancing civilization. At certain times of the day the mailing departments of the large city post offices are piled mountain high with bundles and packages; forces of shirt-sleeved men work day and night sorting them out, throwing the smaller into their appropriate bags, placing aside for careful treatment the parcels marked "fragile" and "perishable," and loading into mail wagons the bulging canvas sacks. The rapidity with which these enormous masses disappear under expert handling, the expedition with which they find the way from sender to receiver, the comparatively few complaints made about breakage and losses — all these things emphasize again this quiet revolution in transportation.

MR. JOHN C. KOONS

THE DIRECTOR OF THE PARCEL POST, WHOSE EFFICIENCY IS LARGELY RESPONSIBLE FOR ITS SMOOTH OPERATION

European travelers no longer express their amazement at the hostility of the American post office to articles of merchandise. They do not now call our attention to the fact that one can send packages more cheaply from San Francisco to Germany than to Oakland or Sacramento. John Wanamaker's four famous reasons for the absence of a parcel post — always quoted in an article

SOME KINDS OF MAIL MATTER THAT NOW GO BY PARCEL POST

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MR. ALBERT S. BURLESON

POSTMASTER-GENERAL OF THE UNITED STATES, WHOSE FAR-REACHING EXTENSIONS OF THE WEIGHT LIMIT OF PARCELS AND REDUCTIONS OF RATES HAVE GREATLY WIDENED THE USEFULNESS OF THE PARCEL POST AND HAVE BROUGHT IT INTO DIRECT COMPETITION WITH THE EXPRESS COMPANIES

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A STREAM OF PARCELS DESCENDING TO THE SORTING TABLE

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THE PARCEL POST AND THE MAIL-ORDER BUSINESS

I. WOMEN'S SUITS STARTING ON THEIR WAY THROUGH THE MAILS TO ALL PARTS OF THE UNITED STATES

ready its success is stimulating thought along similar lines. Governmental ownership of telegraphs and telephones is the announced policy of the present post office

THE PARCEL POST AND THE MAIL-ORDER BUSINESS

II. WEIGHING THE PACKAGES AND CHECKING THEIR DESTINATIONS TO DETERMINE THE NECESSARY POSTAGE

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THE PARCEL POST AND THE MAIL-ORDER BUSINESS

AENT CLERKS CANCELLING THE PARCEL POST STAMPS IN A BRANCH POST OFFICE IN A MAIL-ORDER HAT THE PACKAGES MAY GO DIRECTLY TO THE TRAINS WITHOUT CLOGGING THE MAIN POST OFFICE

tion; whatever one may think e idea applied to railroads, it is ably a more practical issue as ever been before. The im- f the parcel post, therefore, goes d the service immediately ren- s demonstrated success through rs is likely to change fundamen- onception of government. What, been the results so far?

January 1, 1913, when the new regulations went into effect, the United States had really had no complete system for the transportation of merchandise. The railroads were practically the only agencies used for this purpose. They transmitted the bulkier kind of freight at their own profit and their own risk. They had always regarded this kind of business as properly their affair; it was, in fact, their largest source of revenue. For some strange reason, however, they had farmed

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THE PARCEL POST WINDOW OF A CITY POST OFFICE

THE ZONE- AND RATE-CARD HANGS ABOVE IT WHERE THE PUBLIC CAN SEE JUST WHAT THE CHARGES WILL BE

out the transportation of smaller packages — articles that needed to go quickly on passenger trains — to private companies. These companies made a business of collecting such parcels in cities and towns and of delivering them in places of destination. With the exception of guarding them in transit, by means of messengers placed in baggage cars, the express companies performed no other service. The real work, that of hauling the parcels, the railroads did themselves; their capital, represented by track, stations, cars, locomotives, was what really performed the express service. The railroads and the express companies were practically partners in this work. The express companies did not pay a graded rate for transportation, as did private shippers; they made certain charges to the public, generally regarded as exorbitant, and divided these receipts almost equally with the railroad companies. Popular writers have emphasized sufficiently the evils, real and imaginary, of this system; these evils, however, did not constitute the basic iniquity. The social and economic wrong is apparent when we carefully study a railroad map of the United States. These railroad systems naturally penetrate only the commercially profitable regions. They link together the cities and towns and those sections of the country where business accumulates in considerable quantities. The express companies, having no transportation systems of their own, and being dependent absolutely upon the railroads, do the same thing. They furnish a service only where the railroads go — in the centres of large population. They skim the cream of the business. Unless one lives on a railroad line, or conveniently near to one, he has no express service at all. And in the smaller country districts reached by railroads the express service is only half what the large centres obtain; there is no "pick up" and delivery

one has to carry his parcels to the and call for them himself.

there are 20,000,000 people in the States — one fifth of the popula- who live in sections not reached railroad. These people have had of enjoying even the expensive performed by express companies. s this element was concerned, they olated from civilization. They little towns and ranches, in lumber ing camps, on inaccessible farms. presented a valuable and worthy in the population; precisely the pioneer and agriculturist that the ment is attempting to encourage. ere found, not only in far Western dle Mississippi Valley states, but in the longest-settled communities. ere hundreds of thousands of them York, in Pennsylvania, and in New d. The express companies ignored eople simply because it did not rofitable to serve them.

Government, however, had or- its mail service on a different le. It long ago adopted the policy ing these people into communica- th the rest of the world, whether it not. It did this on the broad le that without a mail service life be so unattractive that the settle- the country would be delayed; and ty concentration, admittedly one great evils of the time, would be ied. National policy thus regarded ecessary to subsidize the mails in egions for the same reason that a for general education is justified. eral years it had indirectly taxed ple from $40,000,000 to $50,000,000 to bring the mails to these districts. is way the Government had built great and financially unprofitable It had about 42,000 "rural car- who collected and delivered mail in intry. In addition it had about men known as "star route" con- s. These picturesque individuals d in sections where there were no ls at all. They themselves per- the mail service that railroads in more thickly settled sections. ral carriers really *operated in a* circle; they took the mail from the railroad points and carried it into the surrounding country, going back to the original headquarters. The star route contractor operated in a straight line, from post office to post office and return. Originally his business was simply to carry the mails from post office to post office: as time went on, however, a certain amount of delivery work developed.

Until January 1, 1913, the American citizen could mail a package weighing not more than four pounds at the rate of one cent an ounce. The total postage, on four pounds, was thus sixty-four cents.

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MAILING THE FIRST PARCEL

FORMER POSTMASTER-GENERAL HITCHCOCK OPENING THE PARCEL POST TO THE PUBLIC BY SENDING THE FIRST PACKAGE EVER MAILED UNDER THAT SYSTEM IN THIS COUNTRY

BRINGING THE CITY STORE TO THE RURAL HOME

A RURAL FREE DELIVERY CARRIER PUTTING A PARCEL POST PACKAGE IN A FARMER'S MAIL BOX

That was the American parcel post as it existed up to that time. As a result of the limitation in weight and the high tariff, merchandise, in practical quantities, was excluded from the mails. The enormous and expensive plant the Govern-

A NEW BOND BETWEEN THE COUNTRY AND THE TOWN

A FARMER SENDING HIS PRODUCE TO A CUSTOMER IN THE CITY BY WAY OF THE PARCEL POST

ment had built up to serve these 20,000,000 people was lying almost idle. In these days of scientific management, that was probably our most glaring illustration of inefficiency. On January 1st, however, the situation changed. The mails were then opened to packages weighing eleven pounds — afterward, in the first two zones, increased to fifty pounds, and in all others to twenty pounds — at comparatively low rates. In a twinkling the plant that had been largely idle and unproductive became a useful, going organization.

NO HARDSHIP TO RURAL CARRIERS

Greatly as this change stimulated postal business it brought no particular hardship upon the working force. Congressmen may talk eloquently about the sufferings the parcel post inflicts on rural carriers; in the main, however, these speeches are merely for political effect. The rural carrier, in most instances, has never been an overworked citizen. Those carriers who had spent two or three hours a day on a bicycle or horseback delivering letters naturally felt some inconvenience when their loads were so increased that they had to invest in more adequate equipment. Nearly all complaints from rural carriers turned out to be instances of this kind. Carriers, however, who had a proper equipment — a steady-going horse and a wagon — were not particularly overburdened by the increase in mail. In the majority of cases these wagons had been partly empty; and the increased mail from the parcel post simply filled them. Congress had already raised their wages $100 — increased this year by another $100 — in anticipation of this additional work; so that, except in a few instances of real hardship, they were much better off than before. There have been few complaints from the rural carriers; there are altogether too many applicants on the waiting list looking for their jobs.

With the increase of the mailable limit to fifty pounds, however, many distant wails have come from the star route contractors. These men are not salaried, but hold their positions under contract; the postal department lets out the star routes on competitive bidding, each man putting up a bond for the fulfilment of the contract. According to the stories reaching Washington, all kinds of queer things were now happening on these routes. Men who had never had the advantage of a freight train, to say nothing of an express service, now began to make the fullest use of the new convenience. One star route contractor in Idaho on a chilly morning found himself with three carloads of ore to transport, put up in fifty-pound sacks. A report came from a town in Wyoming that the post office, inside and out, was piled high with several tons of beans awaiting shipment to a local mining camp. The office, it was said, had been clogged for more than a month, while the weary contractor took the shipment away in daily instalments. At other places carloads of flour, put up in fifty-pound sacks, were found with postage stamps attached. On the bad mountain roads the drivers were frequently stuck for hours in the mud, their wagons piled several feet high with iron ore, sacks of potatoes, and other now legally mailable matter. In a certain town in Wyoming a number of tie-cutters left one camp to move on to another, eighty miles away. They had certain domestic impedimenta which they called bed and bedding — material that they succeeded in rolling up so that it complied with the parcel post regulations. Ordinarily they had had to pay the stage line five cents a pound for shipping this stuff; the lumbermen, however, had heard of the famous bean and flour and ore shipments and learned that they could mail their furniture for little more than a cent a pound. The local post office was almost concealed by this sudden increase in its business. "The joke is again on the star route contractor," was the comment of the local newspaper on the incident.

"I made a contract to carry the mails, not to be a freight train," this injured citizen wrote to the postal department.

A PARCEL POST TOWN

One case that was investigated by Washington illustrates not only the woes of these contractors, but the new service the parcel post performs. Silver City, N. M., is the terminus of a branch of

the Southern Pacific Railroad. From here for about a hundred miles stretches a road to Mogallon. This hundred miles forms a mail star route. Mogallon is a permanent mining camp of about 1,500 or 2,000 people; the miners live there with their wives and families, shut out, except for the mails, from all the comforts and advantages of civilized life. All their household supplies have come from Silver City; there was a local stage coach freight line, which dragged the things over the mountain road at an enormous cost to the sender — a cost that reflected itself in the expense of living.

But hardly had the fifty-pound limit become effective when merchandise began to accumulate in the Silver City post office, directed to Mogallon. The mine owners first learned the new virtues of the ordinary postage stamp; the star route carrier found carloads of crude oil and zinc plates awaiting transportation over the hills. He put on one or two additional teams — all at a great money loss to himself; but his troubles had only begun. The storekeepers in Mogallon now began to order all their ordinary supplies through the parcel post. Sacks of flour and sugar, casks of molasses, boxes of crackers, cases of breakfast foods, preserves, and all the other numerous things that stock a country store now flowed in by mail. There is little in the form of merchandise that cannot be compressed into fifty-pound sacks; in a few weeks, therefore, the whole town was eating new kinds of food and more of it by grace of the United States mails. The dealers, who had been paying the local freight, $3 a hundred pounds, now pay the Government $1.08. The news rapidly spread to the people, few of whom had ever heard of the parcel post. The catalogues of mail-order houses filtered into town; strange new things, like up-to-date women's hats and fashions in dress, now came into the mail for Mogallon; the people suddenly found themselves part of the outside world and the whole aspect of life as suddenly changed. Mogallon is now a parcel post town; it lives, eats, dresses, and enjoys itself largely through the mails. Not far from 10,000 pounds of the new matter enters the town every day. Moreover, by readjusting his compensation so that he can put on more wagons, the troubles of the star route carrier have disappeared.

SUBSIDIZING THE COMFORTS OF LIFE

The department has already readjusted arrangements on a considerable number of routes like that from Silver City to Mogallon. In hundreds of places in the Far West the parcel post will rearrange the life of people in these remote hamlets. Naturally it does this at a considerable loss. The star routes, however, have never paid for themselves and were never intended to. They were organized to subsidize some of the blessings and comforts of life in districts that had hitherto never known them. The justification in still further increasing this subsidy is that the parcel post, on the whole, yields the department larger profits.

Probably the makers of the parcel post did not have these outlying villages — many of them too small to get upon the map — so much in mind as the great rural population that lies along the free delivery routes. These sections, though fairly thickly populated, the express companies seldom reached. And here the parcel post renders the same service that the express companies render in town. Every day the rural carrier stops at the farmer's door; he takes anything the farmer wishes to send to town and delivers anything that comes. He is thus a channel through which trade can constantly flow between the city and the country.

20,000 PACKAGES A DAY

And this trade is already flowing in large quantities. It must be confessed, however, that this transit so far has been largely in one direction. By virtue of the parcel post, the cities, both large and small, have already annexed the rural districts; the country, however, has been more backward in putting itself in touch with the town. The greatest single patrons of the parcel post are the mail-order houses. Sears, Roebuck & Company, of Chicago, use it more than any other one firm or individual — on an average 20,000 parcels, representing $6,000 in postage, leave

quarters every day. A large lerks looks after this mail matter; office has established a special the store to handle it. Other ›rder houses, in Chicago and New : the parcel post on an enormous he larger department stores, that ewhat different business, are also ; their sales by mail. People ›rth and South are already learn- ıy fine dress goods and the like finest retail shops in New York. :ral anticipation, therefore, that -order houses and the big city uld increase their sales has been This, it may be remembered, rgument urged against the insti- here was some fear that their on would drive the village and / merchants out of business.

ICEL POST AND THE TELEPHONE

is fear evidently had little foun- The small city and village mer- eem as enthusiastic about the n as are their larger rivals. For ly it is increasing their trade also. ultural Middle West, for example, ork of telephones. The farmers ned to use this convenience al- much as their city friends have. the telephones and the parcel post autifully together. The house- up the village store and asks to ain things — perhaps dress goods ehold utensils — sent out im- /. In the old days she would to go to "town" herself, or have d man" harness up, or wait for ays until some friend could do nd. Now her purchase arrives norning with the rural carrier. .O. D." system facilitates the ı. In the smaller cities the same n prevails. The local merchant t his area of patronage, which was limited to the city itself, has a 150 miles. He has one advan- : the mail-order house in a lower hin this distance. Within this 50 miles the rate is virtually a cent outside, it is larger. A merchant s from Chicago, therefore, has a a within which, because of his lower postage, he can still do business. And the fact is, as already said, that the local merchants have already outgrown their apprehensions of the parcel post.

The admission of books to the parcel post, which became effective in March, greatly extended its value, particularly to these rural sections. This provides for their spiritual and intellectual needs as the original regulations did for their material welfare. Probably no one service will be more extensively used.

LITTLE COUNTRY-TO-TOWN BUSINESS

Still business flows from the city to the country; it does not yet flow in large quantities from the country to the city. This is certainly disappointing, in view of what the rural districts can really do for the town. Intermittent shipments of eggs, butter, asparagus, and even an occasional spring chicken pass through the mails; at Thanksgiving and Christmas, large numbers of turkeys arrived by postage stamp. There has been no movement, however, of sufficient quantity to affect appreciably the present cost of living. The middleman is still the great commercial monarch that he was. Probably the strongest plea for the parcel post was the inevitable dethronement of this ogre. Congressional orators pictured the several hands through which a dozen eggs or a pound of butter passed before it reached the indignant housewife. Statisticians attempted to prove that the American farmer got $6,000,000,000 a year for his product, and that the consumer paid $13,000,000,000 — the difference, a trifle of $7,000,000,000, passing into the hands of an "economic parasite" known as the middleman. Mr. Benjamin F. Yoakum, in an article in this magazine, said that the trouble was not the "high cost of living," but the "high cost of selling." For these evils the parcel post looked like the simplest remedy. By this means the farmer could do his products up in neat parcels and mail them directly to the city consumer. He would get something more; the city dweller would pay something less; and each party to the transaction would be much better off. In certain cases such an interchange is going on; any large

movement, however, has not yet taken place. Every farm is not yet a "mail-order house" for the city.

The reasons are plain. In the first place it is not easy to pack farm produce for transmission through the mails. If you are going to entrust a dozen eggs to the mails so that they can be put into a sack and thrown off a train going at the rate of sixty miles an hour, you must be an expert packer. The thing can be done, but not everybody can do it; the process, too, is an extremely expensive one. This whole problem of packing proved to be difficult. A fish done up in ordinary brown paper is not only likely to arrive in rather sad condition, but usually has an unfortunate effect upon neighboring parcels. Eggs or other animal matter that leak through upon a lady's new Easter hat produce complications. The real difficulty in this "town and country" movement, however, is that farmers and city folk, though not far apart, are not largely acquainted with each other. The farmer doesn't know to whom he can sell his produce; the city housewife doesn't know who has it to sell. The Postmaster-General is making intelligent efforts to remedy both these difficulties. Perishable matter, such as eggs, fruits, and poultry, is now handled "outside the mails;" that is, is not put in sacks, but kept separately in the car. The department is also seeking to find the right kind of "containers" for recommendation. It has just started a campaign intended to bring together the buyer and seller. As an experiment, rural carriers in certain districts will collect the names of farmers who would like to enter directly into business relations with city people. These names will be printed and given to prospective buyers, perhaps distributed in cities by letter carriers. The city housewife can select some farmer with whom she can deal regularly through the mails. If the plan works successfully in selected areas, it will be adopted all over the country. There seems no reason why it should not succeed. There are many city women, of course, who are lazy and unthrifty and market in haphazard fashion because it saves them trouble. But there are probably enough of the other kind to make such a scheme practicable.

Though the parcel post has been operating only a year and a half, certain myths have already developed about it. One is that the Government has no system of accounting and, therefore, does not know what the new service is costing. Another is that the parcel post deficit is something Brobdingnagian. Another is that the Government is cheating the railroads in that it is paying nothing additional for carrying the parcels. The enemy says in one breath that the Post Office Department is losing untold millions — one authority places it as high as $100,000,000 a year; and in the next that the thing is paying only because the railroad and other carriers are being robbed.

EXPLODING SOME PARCEL POST MYTHS

No itemized accounting, of course, is made of each piece of parcel post mail. It is the very essence of the system that there should not be. The parcels are mail and nothing else, and they go through the department just like the rest of the mail. The department makes no effort to keep a record of every letter; if it did, the postage rate would probably be nearer ten than two cents; which is only another way of saying that there would be no postal service in the modern sense. Similarly, if the department kept an accurate account of everything put into the parcel post, the cost would be so high that there would be no parcel post at all. The express companies have to keep such records, largely because they operate in connection with railroads and have to have bookkeeping records to serve as the basis for division. According to Congressman Lewis, one of the principal authorities on the subject in Washington, this accounting system, outside of the payment to railroads, is the largest item of expense. For every package that goes through the express, there are eleven separate acts of accounting. In a package in the parcel post, on the other hand, the postage stamp performs all these eleven separate acts. That is what so greatly reduces the cost— what makes the parcel post possible at all.

Though the Government keeps no de-

counting, however, it is hardly fair hat it has no idea as to cost. It ıes this, with a reasonable degree acy, by accountings twice a year. first fifteen days of April and — seasons selected because they t the periods of normal traffic — account of every parcel going the post offices in the fifty largest ıd in selected post offices in the listricts. Every parcel is weighed, ination noted, the postage on it l, the cost of receiving and deliver- ccurately computed. The parcel ıtory of these thirty days is be- ıirly to answer any question that asked concerning its cost. The s, even when a large margin is for error, pretty well dispose of that the parcel post is earning a They show that 600,000,000 par- e mailed in 1913, upon which the postage was 10 cents. Making ous allowance of $10,000,000 for ıis would give the department a of $50,000,000. The most in- enemy of the parcel post cannot figure how it is costing that r anywhere nearly as much. The single item of increased cost, the compensation to rural carriers, s to only $5,000,000 or $6,000,000. ve already said, the Government had to install a new plant to care business; it is simply using, in rections extending, a plant already ed. It is in the position of the ıt who increases enormously the of his business without largely ıg his "overhead." The parcel s really come under the head of usiness" obtained at a small cost. erks have been required, and more wagons in cities; but these addi- xpenses are small compared with atly increased income. Indeed, ı prevails in Washington that the nent does not dare reveal the facts he parcel post, for fear that Con- n and Senators, inspired by con- s, will set up a howl for an increase ıy of rural and city carriers.

ıll these profits, it is urged, are t the expense of the railroads. Any one can make money in the express business, we are told, if he doesn't pay for having the parcels carried. Here, again, the facts are not quite as they are related.

ARE THE RAILROADS BEING ROBBED?

The New York Central and the Pennsylvania Railroad, for example, receive 30 per cent. of all the money paid to railroads by the American Government for carrying the mails. As a result of the increased business of the last year, mainly the product of the parcel post, these roads have received an increase of nearly 50 per cent. in compensation! So far as 30 per cent. of railroad pay is concerned, therefore, there certainly is no case of "robbery." These transportation systems owe their good fortune to the fact that their year of "weighing" came into 1913, immediately after the parcel post began. All this confusion about railroad pay for parcel post is explained by the present system of compensation. It is impossible to weigh each sack of mail as it goes upon the railroad and pay accurately by weight; if the Government did this the mails could scarcely move. The department, therefore, has an elaborate system of "averaging it up." On every railroad the mails are weighed once in four years for 105 days, and an average taken for those 105 days. On this basis the compensation is fixed for the next four years. The country is divided into four sections, one section being weighed every year. Last year the eastern states were weighed; this year it is the turn of the Pacific region. By the time this article appears, therefore, the parcel post compensation will be readjusted in about half the country — and that the half with by far the largest traffic. Until these weighings are made, Congress provided that increased compensation should be made to all the roads not to exceed 5 per cent. In some cases this increase was more than enough to make up for the parcel post; in many it was not enough. If the increased railroad pay, as finally arranged, should amount to 25 per cent., it would add about $12,000,000 to this item of expense — an amount that would fall far short of devouring the increased revenue derived from that source.

It is not unlikely that there are railroads that are being unjustly treated by the Government in payments for the parcel post. Mr. Howard Elliott, chairman of the Board of Directors of the New Haven Railroad, makes this claim in his recent statement to stockholders. There is no disposition at Washington, however, to make any such situation permanent. Congress, at the present writing, is conducting an elaborate investigation of the question of railroad pay, with the idea of putting the whole thing on a scientific basis.

EXPRESS COMPANIES DESPERATE

But the most picturesque aspect of the parcel post, of course, is its effect upon the express companies. At the present moment their troubles seem fairly overflowing. The Postmaster-General, by increasing the weight limit in the first two zones to fifty pounds, and decreasing the rates, immediately pushed the parcel post into the express company field. At the same time the Interstate Commerce Commission cut down the express company rates everywhere. As things stand at present it is far cheaper to use the parcel post up to the 300-mile limit; beyond that the express rates are generally lower. The Government has the advantage on the short haul, the express companies on the long. Merely by increasing the weight limit to 100 pounds — something quite likely to happen soon — the express companies would be practically closed out of this profitable short-haul business. As things stand at present, the express companies can perhaps survive, but with decreased earnings; any extension of the parcel post, however, as they say themselves, would end their occupation. "We can stand what we've got, but for Heaven's sake don't give us any more!" That fairly expresses their attitude. Inasmuch as the extension of parcel post seems fairly inevitable, the outlook for the express business in the United States is not especially promising. Significantly, in Europe, where the 110-pound parcel post quite generally prevails, there are no express companies.

The United States Express Company is already preparing to close up; that is not especially significant, however, as its financial condition has not been strong for several years. All other companies have had material decreases in earnings; nearly all have had to reduce their dividends. But a new spirit has taken possession of the express business. The old attitude of indifference and even of arrogance has disappeared. In the Wells Fargo, especially, a new administration has taken hold and is making all human efforts to adjust its business to the changed conditions. It recognizes that the express business, if it is to endure, must be something very different from what it has been. It is searching all its departments, cutting out waste, installing new methods. The modern watch-cry of efficiency has reached its offices. It has called in several of the devotees of scientific management, and it has organized its own commission on efficiency, composed of five of the higher officers, who spend the larger part of their time traveling over the lines, instituting economies and introducing new business methods in all departments. It has organized a food products department, which is attempting, like Postmaster-General Burleson, to bring together the farm producer and the city consumer. It is the theory of the Wells Fargo Company that, whatever the postal authorities try to do, there are still things that a properly organized express company can do still better. The element of "personal service," the ability to give minute attention to shipments, the fact that they guarantee against loss and breakage, that they call for as well as deliver parcels, that they keep records, and can be trusted to carry valuable packages which one would hesitate to drop into the mails — these things, they agree, give the express companies a distinct advantage over the parcel post.

In the new attitude of the express companies there is a touch of humor. Their every effort is now bent on conciliating the public. They are even sending out instructions to the employees giving them points on etiquette. An agent who receives a parcel is now told to say "Thank you." If it is a lady, he is enjoined to "lift his hat." Certainly the parcel post has accomplished something.

TEACHING COUNTRY TEACHERS TO TEACH COUNTRY LIFE

THE REMARKABLE WORK OF DR. SIDNEY G. GILBREATH AND HIS ASSOCIATES OF THE EAST TENNESSEE STATE NORMAL SCHOOL WHO ARE SENDING OUT HUNDREDS OF MEN AND WOMEN EQUIPPED TO IMPART THE SCIENCE OF RURAL LIFE AND INSPIRED WITH MISSIONARY ZEAL TO SERVE THEIR COMMUNITIES

BY

WALTER A. DYER

DAVID RILEY HAWORTH is professor of Ancient Languages at the East Tennessee State Normal School. A title like that is a good deal of a burden for a man to lug about when he starts out to become an apostle of country life. But Professor Haworth doesn't let it hamper him; he forgets it.

Last summer Professor Haworth was conducting a teacher's institute at Athens, in McMinn County, Tenn., and it struck him that there was a good deal of lost motion in the theorizing and experimentation that made up the work of the institute. Why not get out and do a little laboratory work in the field and make it mean something?

So one morning he said to his class of country-school teachers, "The problem to-day will be, how to clean up a rural schoolhouse."

He led them out into the country to a district primary and grammar school that stood in all the forlorn sordidness of back-country neglect. It was a small, one-room building with a tumble-down out-building in the rear and a big oak tree in front. There were several clapboards missing, and at one side of the front door the wall presented an irregular open-work design. The steps were broken and crooked. The portion of the chimney which appeared above the ridge had apparently long since abandoned any attempt at co-operation among its component parts. One or two window panes were missing. An indication of paint or whitewash here and there served only to intensify the building's degeneracy. Inside, the floor was knobby and splintery and not at all clean. The stove and smoke-pipe were rusty. The benches were broken, comfortless, and marred by jack-knife carvings. A box resting casually on wabbly legs represented the teacher's desk.

The inspection took place at eight o'clock in the morning, and presently a load of supplies arrived, which Professor Haworth had previously secured in some miraculous manner — paint, lime, bricks, shingles, clapboards, planks, and modern school desks. Then followed a practical demonstration of how to clean up a schoolhouse. The steps were rebuilt, the outhouse repaired and remodeled, the missing shingles and clapboards and window panes replaced, the top of the chimney relaid, and the exterior of the building painted. Within, the floors were repaired, scrubbed, and oiled. The old benches were torn out and the new desks set up. The stove and pipe were given a coat of bronze. A new table replaced the sketchy desk of the teacher. One of the windows through which the sun had been wont to shine into the pupils' eyes was boarded up and book shelves were built in and hung with curtains. A four-foot band of blackboard was painted around the room. Then the litter was cleared away and the grounds cleaned up, and at four o'clock in the afternoon the squad of teachers signed Q. E. D. at the end of the day's problem.

That is the way Professors Haworth and Mathes and Wilson and Sowder and

Miss Armstrong and President Gilbreath and the rest of the faculty of the Normal School are teaching the teachers of East Tennessee and incidentally raising the standard of rural life throughout thirty-four counties. Perhaps they don't realize that they are doing their particular job any better than most other normal schools, but they are.

SCHOOL PROPAGANDA WITH A BANJO

The beginnings of their work go back ten years or more to the time when Dr. P. P. Claxton (now United States Commissioner of Education), the late Seymour A. Mynders, Dr. Sidney G. Gilbreath, and one or two other enthusiasts in the state cut the Gordian knot of political red tape and went before the people with the problem of the rural schools. These schools were pretty bad. Tennessee was still in the drowsy Dark Ages of popular education, and state and county authorities were selfishly withholding educational advantages from the people.

But Mr. Claxton and Mr. Mynders wouldn't let the authorities of Tennessee alone. The authorities did not want to wake up, but the bell had rung. One night Mr. Mynders, who had been denied a hearing before a certain Honorable County Court, hired a wagon and a Negro with a banjo and started an evangelistic campaign in the streets. He preached better schools to the people, and when he returned to Nashville he received a letter from that County Court asking him to come back.

That's the way it started. It ended in the General Educat on Act of 1909, which authorized three state normal schools besides an industrial normal school for Negroes, and set aside 25 per cent. of the gross revenue of the state for public educational purposes. This bill was amended in 1913 by the increase of the educational appropriation to 33⅓ per cent. of the state's revenue, and Tennessee embarked on a state-wide campaign of school rehabilitation.

Dr. Claxton kept his rural school propaganda so vigorously alive that the new normal schools naturally assumed a character almost unique among the normal schools of the United States. They are organized about the central idea of practical service to the country districts, which comprise more than 75 per cent. of the total population of Tennessee.

In France the courses in the normal schools are made to include such instruction as will enable the graduate teachers "to carry to the elementary schools an exact knowledge of the soil, the means of improving it, methods of cultivation, and the management of the farm and garden." At the McDonald Institute at Guelph, Ontario, special courses are given to fit teachers to conduct school gardening and agricultural work.

NORMAL SCHOOLS THAT SERVE

In this country we have looked to our agricultural colleges for our school garden instructors, our agricultural high school teachers, and our corn and tomato and poultry club conductors, and they have seldom received training in elementary school instruction. We are, however, gradually coming generally to realize that at least half the usefulness of the men who are trained in agricultural science lies in their ability to transmit their knowledge and that this ability to transmit knowledge depends largely upon the conscious development of the personality of the teacher, and the practice of tact, patience, and the social gifts. The realization of this necessity for combining the personal and professional equipment of the teacher with the technical equipment of the scientist has come largely through the experience of the field agents of the Government in working out their farm demonstrations. But the application of this principle to the training of the great body of school teachers to become practical instructors in country life has scarcely been begun. But the Tennessee State Normal Schools did not wait for a precedent. The sheer logic of the movement and the need that brought them into existence have shaped their character and made them perhaps unique. They preach the gospel of service in the home counties; they radiate the missionary spirit.

In none of them is this spirit so noticeable as at the East Tennessee State Normal School. Situated at Johnson City, Washington County, surrounded by noble

ıtains, this school offers an object lesson rectness and efficiency to all who are ested in the rural school problem — this school is not yet four years old.

hen Washington County was selected he school, the County Court at once ɔpriated $75,000 in bonds, and John-City gave $75,000 in bonds, free lights, free water, and provided granolithic s to the school grounds, which are t a mile from the heart of the town. site, comprising about 120 acres on a tiful hill, and worth about $60,000, donated by Mr. George L. Carter. Johnson City Traction Company ıded its line to the school.

ıe buildings now include a main or emic building, a dormitory for women, ıing hall, including kitchen and laun- a heating plant, and a residence for president — all sightly, well equipped lings of brick and marble. A dormi- for the male students is contemplated. campus has been beautified, blue grass , 3,500 trees and shrubs planted, and a of macadamized road built.

ore than 1,000 students every year avail themselves of the advantages of nstitution. Of these, 600 attend the ner school. Last fall 154 prospective ıers matriculated. In the winter 134 : students were added, part of them ıessee school teachers who came for hort-term course. In the spring there 400 more, chiefly teachers in search of nced training. The expenses of one ent for one term range from $34 to $50.

"LATIN AND COUNTRY LIFE"

ıis is not primarily a vocational school; tudents receive ordinary normal school ing, and the definite object of the ɔl is "the education and professional ıing of teachers for the public schools he state." But President Gilbreath his faculty have caught the Claxton and have not been afraid to step out- the sphere of the usual normal school. r courses are designed to fit teachers ındle the specific problems of the rural ols of Tennessee. And all the courses correlated. Professor Haworth, for ıple, teaches not only Latin but coun- ife as well.

Not to enumerate all the courses offered, a few examples of the way they are tied up to school and community life will suffice to show their practical character.

RELATING THE SCHOOLS TO LIFE

In the course on school management, "among the topics are . . . . the relation of the school to the community, school buildings and grounds, and the relation of the teacher to the parents and the community."

In the elementary reading circle course the text books are Carney's "Country School and Country Life" and Carver's "Rural Economics."

Among the exercises studied in the chemistry course are "the analysis of milk, water, ice cream, baking powder, and head-ache powders; the determination of food values; the analysis of soils."

In physiology, blood, food, and dietaries are studied; "sanitary control of food, air, and water; bacteria in relation to disease: the disposal of garbage; drainage; the prevention and control of communicable diseases."

In physics "consideration is given to such elements as have to do with the science questions of the home, the street, the school, the industries of town and country." In the physical training department playground methods are taught, and in art "the appreciation of color in dress and in home furnishings and decoration."

Agriculture, manual training, and domestic science and art are prominent courses. Professor William J. Sowder, of the school's agricultural department, says: "Throughout the United States there is a growing demand for the teaching of agriculture in the elementary schools. Scientific farming is based upon a body of facts underlying successful farm practice. Investigation at the experiment stations has made many valuable contributions to modern farm practice. This knowledge, valuable as it is, has not reached the masses. No greater agency for its dissemination exists than the public school. For this great work trained teachers are very much needed. To fit persons to instruct both in the science and in the art of agriculture is the sole purpose of this department."

The entire area of 120 acres is conducted as a farm, and a combination dairy and feed barn of modern design and equipment has been erected. Thoroughbred Jersey cows and Duroc-Jersey swine are used in demonstration of modern methods of farm management. Three and one fourth acres are divided into demonstration plats.

Professor Sowder's department offers courses in horticulture, elementary agronomy, animal husbandry, advanced agronomy, and farm management, all definitely applicable to conditions in Tennessee. In the summer term a course in agriculture for rural elementary schools is given. "It takes up the practical methods of teaching agriculture in the country school and includes instruction in the organization and management of corn clubs, tomato clubs, school-ground improvement associations, etc."

On the demonstration plats the students are given instruction in practical farm practice—fertilizers, tillage, varieties, rotations, etc. A small demonstration orchard has been planted and instruction is given to the women students in school-gardening work.

FARM GATES FOR ALL TENNESSEE

The industrial training departments occupy more than 4,000 square feet. The manual training rooms are furnished with complete modern equipment, and the students are taught to make additional equipment as it is needed. Courses in elementary and advanced woodwork are offered. A characteristic of these courses is the construction of useful objects instead of mere problems in joining and tool work. For example, the construction of a practical farm gate is one of the problems, and it may be interesting to note in passing that the school has received hundreds of requests for blue-prints of this gate from all over East Tennessee. Simple apparatus is also made for use in the objective teaching of mensuration and geometry, and in laboratory demonstrations in agriculture, physics, and chemistry.

One particularly interesting course in the paper industry is offered for teachers of grammar school pupils. The course aims to show the possibilities of introducing an actual industry into the school-room at a minimum of expense for apparatus and material and, at the same time, of making a product that has actual commercial value. A simple system of bookkeeping necessary to the industry is part of the course. The work includes paper making by hand, box and envelope making, and book-binding.

Courses are also offered in textiles, basket-making, and mat-weaving, and a special course in industrial arts for public schools, dealing with the simplest elements of construction in paper, textiles, and clay.

The department of domestic science includes courses in cooking, sewing, home economics, and household sanitation. Simple dressmaking and the elements of food chemistry are taught. The home sanitation course includes the study of existing insanitary conditions in actual communities and their remedies, and the causes of prevalent diseases. A home canner affords not only a means for teaching the art and economy of canning, but is used to preserve garden products for the dining hall.

"The public school," says President Gilbreath, "is for the whole community, and as such should minister to the needs of the busy farmer and his wife. To this end the entire neighborhood should be enlisted in some coöperative movement for the improvement of local conditions." Suggestive of this type of public-school activity, a special short course in home economics, farm workshop, agriculture, horticulture, and live-stock is conducted during February and is attended by both regular students and men and women who are not regular students.

A VISION OF PRACTICAL HELPFULNESS

So much for the courses of study. They are well planned and well conducted, but it is the method, the point of view, that counts. Always, in this instruction of teachers, there is kept clearly in the foreground the vision of what it is all for: the ultimate aim of rural uplift. In this all the courses, Latin and agriculture, chemistry and domestic science, profess one object and coöperate to one end. While Miss Armstrong is preaching and demonstrating the importance of pure water supply, good drainage, and cleanliness,

ssor Wilson is teaching his students to teach their boys to install simple ns of water supply and plumbing. : Professor Wilson is demonstrating onstruction of a medicine cabinet for ne or a school, Miss Smith is showing to supply it with simple remedies, is g instruction in their use, and is offer- roof of the danger of harmful drugs patent medicines in a region where use is frightfully prevalent.

APOSTLES OF BETTER LIVING

t the work of the East Tennessee Normal School does not stop here. ight, without criticism, but it does All the members of the faculty are les of better living, and their field is nirty-four counties of East Tennessee. not merely institute extension, though conduct a dozen summer institutes many counties. It is home mission- work. They go to the people and h school libraries, individual drink- ips, improvement of school grounds choolhouses, home sanitation, village : cleaning, and the economic advan- of education. They are doing field nstration work in country life. They d school rallies and barbecues, striving ate public sentiment in favor of con- ted schools and agricultural high ls. They aid in forming boys' corn and girls' canning clubs. They co- te with the county superintendents. visit the meetings of the County ts, the bodies which appropriate the for the building of schools, and plead cause. They buttonhole the politi- and circulate petitions and memorials. are working everywhere to create centres in the rural schools.

is doubtful if this faculty, earnest as would display such a unanimity of se were it not for the enthusiasm, neness, magnetism, and fertility of of the president of the school, Sid- . Gilbreath. On him has fallen the le of Claxton and Mynders. He is man in every sense, with all the power e big man to convince. It is he who tes the missionary spirit that sends his professors to regenerate East essee. Night and day he studies to make his institution more efficient for service, to draw its various departments closer together in the working out of a single purpose. He is one of those men of the New South who are succeeding in big things because they persist in doing a little more than what is required of them.

THE HOME MISSIONARY SPIRIT

Inevitably President Gilbreath's ideal of service, vividly reflected by his able faculty, kindles a fire in the bosoms of his teacher-students. The missionary spirit among them is obvious and universal. It amounts almost to a religious ardor. They come to learn how to be more successful teachers, and they go out missionaries.

A bright young man came down from one of the mountain counties to study Latin and pedagogy. He possessed native intelligence and a thirst for learning. He wished to become a teacher and he wished to succeed. He desired a better sort of life than his boyhood had known, and he was much concerned over his prospects. He called repeatedly at President Gilbreath's office and sought his aid in securing a place in a city school.

As the term neared its close President Gilbreath learned of an opening. It was a good chance for the young man, and the president could honestly recommend him. He sent for him and described the situation, offering to help the student to get it.

The young man went away to think the matter over, and when he returned next day he said, "I don't believe I'll take that place, President Gilbreath."

The president expressed his surprise.

"Since I've been here," said the young man, "I've got a different idea of things. I've changed my mind. I want you to get me a place in my home county."

"But, my dear fellow," remonstrated President Gilbreath, "there are no such positions to be had up there. This is a big school with great possibilities. The place will be a fine start for you, and the salary much larger than you could expect back home."

"I know," replied the young man, with evident embarrassment, "but I want to go back to the home county. I reckon they need me more up there."

A LESS KNOWN EDISON

MR. EDWARD GOODRICH ACHESON, A PIONEER OF AMERICAN INDUSTRIAL RESEARCH AND DISCOVERER OF CARBORUNDUM, ARTIFICIAL GRAPHITE, SILOXICON GRAPHITE LUBRICANTS, AND EGYPTIANIZED CLAY

BY

JOHN M. OSKISON

INDUSTRIAL research in America is so new that its pioneers are still living —most of them hardly past middle age. So new in this country is the idea that the manufacturer and the laboratory worker may form a profitable partnership that it must fight its way. Only a beginning has been made, but the research workers are hopeful; and why not? The story of a man like Edward Goodrich Acheson points to the magnificent opportunities that open ahead of workers with the scientific imagination.

More significant than the long list of formal honors he has received are the titles his good friends and brother chemists have bestowed upon Mr. Acheson, chemist-adventurer. Pathfinder, surveyor, switchman, brakeman, conductor on the road of industrial progress — thus one friend described him. "The Swiss Family Robinson of chemistry" is another's affectionate tag; and a third says that his achievements have turned out to be "classics for children as well as inspirations for chemists, dividend payers as well as contributions to science." At the age of fifty-eight, he represents the ideal American combination of research-worker and business man, scientist and captain of industry.

Mr. Acheson created the industry he captains. He educated himself in research work, and his self-dedication to that career did not become final until he was twenty-four years old. When he was sixteen, the family fortune went to smash; at this time, his father, an iron maker of Pennsylvania, recalled him from school to act as time-keeper at the furnace; shortly afterward, his father died and the iron business was lost. In the next eight years, the young man carried a chain in a surveying outfit, served as clerk in a dry-goods and notion store, as station agent, as resident engineer of a branch-line railroad, as tank gauger in the oil fields, and as inspector and collector for a pipe-line company. During this period the itch for experiment was developing, and he tried to drive the double team of research and regular work on a salary.

But that team would not pull together for young Acheson, and when he reached the age of twenty-four he screwed up his courage to abandon regular jobs like clerking in a store for the dim, alluring rewards of the inventor. With a new suit, and $100 in his pocket, he left the little town in Pennsylvania for New York — electricity was the lure.

New York was not expecting him, had no job for him; following a forlorn hope, the young man went to Menlo Park to see Thomas A. Edison. Mr. Edison looked up from his work at a long, bottle-strewn table, where he sat with coat and collar off and gay in a colored calico shirt, to cup a hand behind an ear (he was already growing deaf) and say:

"What d'you want?"

"Work!" shouted young Acheson.

"Go out to the machine shop and see Krussi," said Mr. Edison, and turned back to his bottles. To Mr. Krussi the seeker told a white lie:

"Mr. Edison sent me to you for you to put me to work."

"What kind of work?" demanded Mr. Krussi. On his way from Mr. Edison to Mr. Krussi, young Acheson had seen a draughting table, and as he had done some draughting while working with the railroad's civil engineers, he answered:

"Draughting."

"All right," said Mr. Krussi. "Mr. Hornig needs an assistant." Later Mr

ıssi found out about that white lie and, ıgh he did not fire Mr. Acheson, he l him under suspicion for a while.

'hat was a glorious time and a glorious ortunity for a fellow interested in the elopment of electrical inventions. Mr. son was only thirty-three years old ı, though world-renowned already for electrical inventions. Just at that e, the men most deeply interested were ting expectantly to the "Wizard of nlo Park" to solve the incandescent ting problem.

After I had been at Menlo Park long ugh to feel at home," said Mr. Acheson, showed Mr. Edison a small dynamo I made at Bradford [while working for pipe-line company]. He told me it like the one designed by Siemens and ised me to go over to the library and a certain book in which I would find achine like mine described."

HELPING MR. EDISON TO INVENT

le was moved to the department where wings for Mr. Edison's patents were le; one day Mr. Acheson captured an ı in connection with the perfection n electrical meter — a task Mr. Edison engaged upon — and he made a draw- to show to Mr. Edison.

I don't pay you to make suggestions to " reproved Mr. Edison. "How do know but I already had that idea? v, if I use it, you'll think I took it from !" Mr. Acheson reassured Mr. Edison the "Wizard" showed how genuinely vas offended by transferring Mr. Ache- to the original experimental depart- ıt at higher pay.

I was now in my glory!" said Mr. Ache- He had demonstrated his capacity think; and the rest of the story of his e and a half years' connection with Edison enterprises is a record of the elopment of that capacity.

t length he felt hampered by the Edison ınization, much extended by that time, he broke away to become an indepen- t experimenter on dynamos and the trol of electrical currents. Practical ess eluded him, and he took a job as erintendent of a small electric lamp ory — at $25 a week. He worked hard, increased output, and cut costs until his pay was raised to $35 a week; then a new, cheese-paring manager came along and cut his pay to $25 a week again, so he quit that job.

About this time he married and became a much-worried free-lance inventor and experimenter, seeking backing wherever he could find it, keeping himself and his wife on sums which ranged from $15 to $25 a week, and conducting his experiments in a sub-cellar so cold and damp that he left his day's work chilled and numb from waist to feet. Two years of this he endured, with the first of nine children coming to share the family fortunes.

SOME EARLY FAILURES

"My experiments proved a failure." This brief tag was frankly hung on various pieces of hard work done by Mr. Acheson in his days of desperate striving to make good: he had the sense to know when he was beaten. His first work, after leaving Mr. Edison, on the regulation of dynamos and the control of electrical currents, turned out a failure. With the backing of two directors of the electric lamp company that had employed him, he began to work out a new type of dynamo — it was a failure.

A critical moment for the inventor! But he chanced upon relief; on a corner of Broadway in New York, he met the late John S. Huyler, the candy maker. Mr. Huyler remembered him as an interesting fellow-passenger on a transatlantic steamship when Mr. Acheson was going over to take charge of the new Edison lighting plant in Paris. In the course of their street-corner talk, Mr. Huyler said that he was interested in a plant in New York City which was working out certain problems connected with the manufacture of insulated wire for electrical use. Mr. Huyler was pessimistic, and he asked Mr. Acheson to join in the experiments until something definite had been determined. The shift was arranged — and soon Mr. Acheson advised giving up the work and shutting down the plant. Another failure!

Mr. Huyler had been paying the young man $25 a week; at $15 a week, Mr. Acheson induced the candy maker to back him in working out an anti-induction telephone

wire. He was so far successful this time that he procured a patent, but no one wanted to buy it; he coiled the new cable down beside his white elephant dynamo and posted a sign above them: "Failure!"

In a state of mind which he refers to as "desperate," Mr. Acheson welcomed a call from an older brother who had gone into the iron business to return to the little town in Pennsylvania and conduct some experiments in the reduction of iron ore by using natural gas.

Another failure! With his family, Mr. Acheson moved out of his brother's house to Kittanning, forty-four miles up the Allegheny River from Pittsburg, and he could think of nothing more hopeful than to try again to sell his patent for an anti-induction telephone cable. To that end he opened negotiations with a cable-manufacturing company at Pittsburg; foreseeing that the dealings would be long-drawn-out, he pawned his gold watch chain to help pay for a monthly railroad ticket between Kittanning and Pittsburg.

HIS FIRST SUCCESS

The late George Westinghouse came nto control of the cable company during that month, and a few days later Mr. Acheson achieved the first success of his career as an independent experimenter and inventor. He sold his patent to Mr. Westinghouse for $7,000 cash, $50,000 stock in the cable company, and a contract to work as electrician for the company for three years at $2,000 a year. Of the cash payment Mr. Acheson turned over $5,000 to Mr. Huyler to reimburse him for money spent on Mr. Acheson's experiments, and the other $2,000 went to the brother.

After three good years with the cable company, Mr. Acheson again took up the career of an independent experimenter. In an abandoned power house at Allegheny City, he tackled the problems arising from the conversion of heat into electrical energy; a syndicate of hopeful Pittsburgers backed him. "Indifferent success," says Mr. Acheson, rewarded his efforts. Failure again!

With his next group of backers, Mr. Acheson acquired a small electric lighting plant at Monongahela City, Pa.; his idea was to use it by daylight as an experimental laboratory and at night to illuminate the town. It was to be self-sustaining financially.

But Monongahela City already had a gas-lighting plant, and the people did not show any strong inclination to switch to electricity. In order to get business enough to keep the company from ruin, Mr. Acheson became active politically and turned the town's officials from anti-electric light Republicans to pro-electric light Democrats. Then he settled down again to his experimenting.

Synthetic rubber was the first thing he tried. He actually produced a small piece; then Mr. Huyler, one of his backers, came from New York to look over the plant. Mr. Acheson told Mr. Huyler about the artificial rubber.

"Synthetic rubber — bah!" Mr. Huyler said that he had just gone into a rubber-plantation project in Mexico, and that they intended to produce more natural rubber than the world could ever use. "Shut up your plant and throw it into the Monongahela River!" advised Mr. Huyler.

"His remarks discouraged me regarding rubber," said Mr. Acheson. "I dropped the subject, and I did not even keep a record of the processes I used to produce my sample." Next he turned his mind to the production of an artificial abrasive.

HOW CARBORUNDUM WAS INVENTED

This was in the winter of 1890-91, when Mr. Acheson was 35 years old. Back in some brain-cell had lain since 1880 the memory of a remark made by a young gem expert, George F. Kunz, who had gone to work for Tiffany in 1879. Born the same year, the two young men had met in 1880; in the course of a conversation, young Kunz had remarked, incidentally, that a successful artificial abrasive ought to have commercial value.

Along with that ten-and-a-half-year-old remark, Mr. Acheson drew from another pigeon-hole of his brain the memory of what had happened one day while he was making experiments with natural gas for his brother. He had passed natural gas into a highly heated furnace containing some clay articles. On withdrawing these

: furnace, he found them impreg-
th carbon, and they seemed harder.
.cheson inferred that the carbon
by the natural gas had produced
ening. Now he set out to repro-
t same result with electric heat by
batch of clay and powdered coke,
it in a plumber's iron bowl, and
an electrical current through it.
owl he attached a lead from his
dynamo, and to another lead he
an arc light carbon and thrust the
nto the batch of clay and coke.
s melted all right, but when he
d examined it he was not encour-
y "sheer chance," however (so
son says), he noticed a few bright
n the end of the arc light carbon;
rested him.
ced one on the end of a lead pen-
aid, "and drew it across a pane of
t cut like a diamond. I repeated
riment, and collected enough of
rial to test its abrasive qualities.
ed an iron disk in a lathe, and,
s surface, applied the material,
dhered; with this revolving disk
polished face off a diamond finger
I owned."
fashion was born "carborundum,"
ive material which has come into
use in all sorts of shapes, and the
ture of which has become a tre-
industry.

IAMING A NEW PRODUCT

nuch patient work in the lighting
Monongahela City, the experi-
collected enough of his bright
take to lapidaries in New York;
t friend from the little town went
, and on the train they worked
name of the product. They
"carborundum" was accurately
ve, for they believed carbon and
n were its two elements. They
ng, but the name stuck.
v York Mr. Acheson found a dia-
tter who consented to try the new
his first achievement was to re-
e surface of the diamond in Mr.
s ring. Then he bought the
l of the specks that Mr. Acheson
ght — paid 30 cents a carat. The proceeds amounted to enough to purchase a fine microscope.

As an experimenter, Mr. Acheson had made good at last; there was no doubt about the value of "carborundum" as an abrasive. He could make it, but the next question was, who would buy it? The lapidaries could use only a very small amount, and the emery-wheel makers said that they could not turn the new material successfully into wheels. But by this time it took a good deal of discouragement to halt Mr. Acheson. He organized the Carborundum Company, with a capital of $150,000, and turned over a third of the stock to the lighting company as compensation for the use of its facilities in experimenting. This was in September of 1891.

Mr. Westinghouse, who had secured the contract for lighting the buildings of the Chicago World's Fair, gave Mr. Acheson his first big order — 60,000 small wheels to be used for grinding the joints of two-piece electric light lamps. With his own hands Mr. Acheson turned out this order, and with the $7,000 received for the wheels he bought for the Carborundum Company its first dynamo, thus formally divorcing that enterprise from the Monongahela Electric Light Company.

Next Mr. Acheson made up with his own hands 12,000 tiny carborundum wheels, embedded them in lithographed cards bearing the invitation, "Try me wet or dry," and mailed them to 12,000 dentists; and the experiment paid.

AN UNSUCCESSFUL EXPERIMENT IN FINANCE

To follow the story of the development of the company would have no especial point except to illustrate Mr. Acheson's persistent enthusiasm and what is likely to happen when the scientific experimenter first attempts the intricacies of finance. Mr. Acheson went to Europe and sold his patents on "carborundum" for so much real money that he came back and convened the board of directors of the company and proposed that it be removed from the plant at Monongahela City, where half the output of a 134-horse-power plant was being marketed, to a 1,000-horse-power plant at Niagara Falls — that was how optimistic he had become.

Mr. Huyler and the other directors said Mr. Acheson was crazy; but as the inventor retained control of the company all they could do to show him what they thought of his project was to resign. They did.

To move to Niagara Falls, Mr. Acheson had to find new financial backing. It was furnished by bankers. They lent the company $50,000 and took its bonds and a bonus of stock; through this and subsequent deals, the bankers gained control of the company, and, as soon thereafter as it could be done they dropped Mr. Acheson from the company. Within a few years, the company was turning out ten million pounds of product a year, the capital stock had grown to $600,000, and Mr. Acheson was able to sell some of his minority holding of this stock at par.

THE DISCOVERY OF ARTIFICIAL GRAPHITE

Out of power in the Carborundum Company Mr. Acheson felt the need for providing something else to occupy his talents and to insure his family's financial future. He took up the study of a product he had secured while experimenting with "carborundum" — a beautiful graphite core which remained after certain silicon elements had passed off as vapor from highly heated "carborundum." He called this remnant of graphite "the skeleton of the original carborundum crystal."

How to produce the graphite in quantity and how to utilize it in commercial processes — here were the problems he tackled. Up to the year 1899, he had taken out a number of patents on processes connected with the production of the artificial graphite; in that year he formed a company to exploit them.

When Mr. Acheson told the bankers about the new company, they demanded 40 per cent. of the capital stock; they claimed it under an old agreement (made before they dropped Mr. Acheson from the Carborundum Company) under which they were to furnish capital for the organization of a carbon company. They had never furnished any capital, and Mr. Acheson supposed that the old agreement had lapsed. He vigorously opposed their claim. After a period of warring, Mr. Acheson agreed to compromise by giving them 25 per cent. of the new company's stock — $250,000. By 1910, the graphite plant was using 5,000 horse-power from Niagara Falls and was turning out ten million pounds a year. Mr. Acheson has retained control of this company, whose capital has grown to three million dollars. The experimenter has become a financier.

AN INVENTIVE SWISS FAMILY ROBINSON

Mr. Acheson received the Perkin medal in January, 1910; it is looked upon as the highest approval which can come to an American industrial chemist. At the meeting of the New York section of the Society of Chemical Industry, when the medal was presented, Dr. Wilder D. Bancroft, of Cornell, a fellow scientist, made an illuminating speech about Mr. Acheson's work. In it he said:

"There is a logical sequence about his inventions which delights the soul of one like myself who lectures on electrochemistry. Mr. Acheson invented carborundum; the carbon in the cone of the furnace changed partially to graphite, and he worked out a method for preparing graphite as a commercial product. Then, on the outside of the carborundum layer was a ring of 'white stuff' — and Mr. Acheson organized a company to manufacture 'siloxicon'!"

Dr. Bancroft went on to show how one discovery had led to another, following that delightful logical sequence which he had noticed.

Then Dr. Bancroft drew a parallel between Mr. Acheson and the Swiss Family Robinson. You remember: After the shipwreck, when the family went in search of food, they discovered a bread-fruit tree across a stream with sandwiches growing at the top. They crossed the stream on a cantilever bridge constructed with the aid of a bow and arrow and a dog. They next discovered a palm tree with cocoanuts growing at the top; in order to get at the cocoanuts, they discovered a shark stranded in the shallows and made climbing gaiters of its skin. After getting the cocoanuts down, the problem remained to open them. Whereupon the Swiss Family Robinson discovered a crab with sharp claws; they induced the crab to insert its claws in the

hole in the cocoanut and spin a yarn which broke its shell and enabled them to get the milk in the cocoanut!

To those who heard, knowing the history of Mr. Acheson, it was a delicious parable.

Like "carborundum," Mr. Acheson's graphite productions have become known all over the world, and their uses have multiplied. From the hardest forms, like the electrodes used in electric furnaces, to the soft, "unctuous" polishes and the "deflocculated" forms which are dissolved in water, oil, or grease and used as lubricants, artificial graphite has proved a valuable new commercial element.

WHY EGYPTIANS USED STRAW IN BRICKS

In working out "siloxicon," his mind was led into a strange channel — and he found out why the Egyptians used straw in making bricks. See how the scientific imagination tackles a problem:

"I reasoned that the greater plasticity and tensile strength as found in sedimentary clays were imparted to them during the period of transportation from the place of their origin to their final beds."

This was in the period when he was trying to find clay in America as good for making crucibles as that imported for the purpose from Germany — he wanted the crucible trade. In thinking over the change in character of clay during its movement from the original bed, he decided that whatever change occurred must be caused, not by the water which carried it, but by the impurities in the water; these would naturally consist largely of the washings of the forests. He began to treat clay with various extracts of plants, among them tannin. A dilute solution of tannic acid was effective in making clay more elastic and stronger — in some cases, 300 per cent. stronger. So treated, clay remained diffused in water, in so fine a state that it would pass through a filter paper. Less water by 40 per cent. was required to produce a given degree of fluidity.

"These effects," said Mr. Acheson, "seemed remarkable, and I thought they might be of considerable use in clay working. Knowing that clay working was one of the most ancient of arts and very extensive in practice, I wondered if this effect were known. I made a search of all available literature, and only one reference could I find to the use of vegetable matter in clay working, and that was in the Bible where we are told that the children of Israel, under the instructions of the Egyptians, used straw in making bricks

"The fibre of straw is very weak, not nearly so valuable as a mechanical bond as many other vegetable fibres available to the Egyptians, and I thought they must have used straw for another reason. Straw contains no tannin, so if the effect I had obtained was due to tannin only it was not likely to be produced by the extract of straw.

"I boiled some straw in water and found that it dissolved to 50 per cent. of its weight and when it was used to treat clay it acted like tannin. Having determined this fact, I now thought that the Egyptians must certainly have been familiar with this effect, and in that belief I called clay so treated and dried 'Egyptianized clay'."

Thus is revealed the Acheson mind at work, unhampered by precedent, uncluttered by formulas, pursuing with patient logic a thought which promised to turn into something practical, rising to the heights of practical achievement through a poet's flight of imagination.

To his friends he is Acheson the well-loved; sheer genius (that old capacity for taking infinite pains) has characterized his career as a maker of friends, as an experimenter, and as an organizer of industry. Offices in scientific societies, medals, degrees, have been bestowed upon him. He has collected them as eagerly and in the same spirit as he has collected automobiles; probably in the same measure he enjoys them. The great truth about life, as he sees it, however, is that it is a wonderful adventure; its interest and excitements will last clear to the end!

DOING BUSINESS BY THE WEATHER MAP

HOW THE WEATHER BUREAU ENABLES MANY MEN TO INCREASE THEIR PROFITS AND ENABLES OTHERS TO PREVENT LOSS

BY

ALLAN P. AMES

A YOUNG contractor, recently graduated from street-paving jobs into the broader field of reclamation work, went into bankruptcy, and his creditors met to learn what they could save from the wreck. Wishing to get the full benefit of an expensive lesson, they inquired carefully into the causes of the disaster; and most of them carried away the consoling notion that it was an exaggerated case of hard luck which discredited neither their own good judgment nor the honesty and ability of the bankrupt. A shrewd but kindly old banker, who held fifty thousand dollars' worth of the contractor's worthless paper, summed up the situation as follows:

"Jim's a genius at handling men and a wizard at figures; but when you have to out-guess old Boreas about the weather you need capital enough to cover up an occasional mistake."

Rain and cold weather had conspired to ruin the contractor, and had done their work thoroughly. He had figured to the last decimal the number of cubic yards of earth and rock he had to excavate and just how much cement was needed for his dams and reservoirs and just what it would cost to transport men and machinery from the nearest markets and to house and feed a regiment for a year or more in a sparsely settled region. It was a big conservation and irrigation project in a Western state. The work was more than half finished and the results thus far had justified his calculations, when the elements turned loose and in two weeks wiped out first his paper profits, then his small reserve, and finally his really excellent credit. A sudden freeze spoiled ten thousand dollars' worth of fresh cement work; the rains washed out his tramways and started a landslide that filled his deepest cut; a meandering little stream rose over-night in the hills of the adjoining state and swept away the foundations of his principal dam. About all that was left for his creditors was a couple of steam shovels, some rolling stock, a stack of hand tools, and a few thousand bags of cement.

This is a picturesque kind of so-called hard luck, popular with writers of stirring tales in which the heavy villainy is left to Mother Nature. Now, as a matter of fact, Nature is not the treacherous virago she is so often described. Year in and year out she follows a fairly reliable routine; and when she indulges one of her rare whims she gives due warning. If the unfortunate contractor, before submitting his bid, had consulted the records of the United States Weather Bureau, he might have learned the average date of the first hard frost in that region during the last ten years, and confined his cement work to a safer period. The same records would have warned him when to look out for excessive rainfall; and the nearest governmental observer could have told him that it had been raining hard in the neighboring hills for three days before the floods descended upon him.

This is not an isolated case. Examples of similar ignorance and neglect can be multiplied, not only in out-door work but in nearly every branch of commerce and industry. But there is more to learn from the experiences of men who realize

the practical value of the service and have coined forecasts and temperature and precipitation records into profits.

The days of skepticism regarding the reliability of the Weather Bureau are past. If the forecast in the morning paper indicates rain, most of us carry umbrellas and mackintoshes when we leave home. The average citizen's appreciation of the weather service ends here — with its ministration to his personal convenience and comfort. The more important application of the Weather Bureau's work to business is not so well known.

A BUSINESS BUILT ON WEATHER FORECASTS

Study of the weather reports from day to day helped an Iowa man to build up one of the largest wholesale fruit businesses in the Middle West. His method was simple. Most small fruits, and particularly strawberries and raspberries, spoil easily when picked wet. This man shifted his orders so as to avoid buying from sections subjected to recent rains. A result was that he gained a reputation throughout the trade for the excellent quality of his stock.

One day this dealer roused the curiosity of the local weather observer by a telephone inquiry about the weather prospects in the grape belt of western New York which, at that season, supplied a large part of the demand from the territory just west of the Mississippi River.

"Rain," was the answer. "It's going to rain there to-morrow and probably the day after."

A week or two later the observer met the merchant and asked what use he made of the information.

"It was worth to me," replied the fruit man, "about two hundred dollars. You see, grapes can't be picked in wet weather; so I knew if it was going to rain out there, grapes would be scarce here. As soon as I got your answer I ordered a double shipment — two cars instead of one. It rained in New York for three days running, and the price of grapes here rose to a figure that let me sell my shipment at a fine profit. The only mistake I made was in not ordering four cars instead of two."

In his last annual report, the chief of the Weather Bureau asserts that 85 per cent. of the governmental forecasts prove correct, and adds that this is a conservative estimate. The popular reputation of the bureau may rest upon its success in discounting the future, but business owes quite as much to the painstaking, scientific care with which the service collects a complete record of daily weather changes throughout the country — after the changes have taken place. These records have accumulated now for a sufficient number of years to furnish fairly reliable averages, actuarial tables of weather risks, which are bound to increase in accuracy and value as time goes on.

SELLING RAINCOATS IN RAINY SEASONS

Comparatively few industrial concerns thus far have taken advantage of this phase of the Weather Bureau's work; but the Government's meteorologists believe that the time is not far off when its importance will be universally appreciated. One of the first big corporations to recognize its value was the United States Rubber Company, which deals in rubber boots and shoes and waterproof garments and rubber tires. Accountants from the office of this company spent a week recently copying records at the office of the New York Weather Bureau. From these figures, tables have been prepared which show the average temperature and precipitation during the last ten years for every month of the year in the various districts into which the country has been divided by the sales department. By this means the company expects to multiply the efficiency of its forces, conserve the energies of its salesmen, and furnish a timely guide for its local advertising.

Another concern which manufactures raincoats and has agents in every state of the Union has just prepared, from the New York Bureau's rain records, tables which show for its different districts not the amount of precipitation, but the average number of days when rain fell during each month. The theory in this case was that raincoats are worn just as much when it sprinkles as when it pours.

The sales manager of a big hardware firm, whose salesmen cover the continent, has a file of the Government's daily weather reports always at his elbow. If one salesman writes from southern Minnesota that his poor showing for the month was due to unusually rough weather, the sales manager checks up his excuses and perhaps the records point out to the manager something that the salesman overlooked — for example, that his territory has enjoyed a long spell of unusually good growing weather which, a month or two hence, promises an extraordinary demand for certain harvesting tools; or that weather conditions have been hopelessly against him, but so propitious to the salesman of the territory in the adjoining state that he hasn't been able to cover his field. In that case the first salesman gets a telegram to abandon his own territory for a time and to go and help his associate.

WEATHER STATISTICS FOR PRACTICAL USE

The governmental records do not stop at summarizing temperatures and precipitation. They show the mean and the maximum and minimum temperatures for every month and year at a large number of stations scattered throughout the country, the average temperatures at eight o'clock in the morning and at eight o'clock at night, the number of days in each month when the mercury registered below freezing or above ninety degrees Fahrenheit, the monthly percentage of humidity, the monthly average of wind pressure, the maximum and minimum velocities of the wind and its prevailing direction, the number of days each month when it reached a gale of forty miles an hour and the direction at the time of its greatest velocity, the monthly number of thunder storms, the atmospheric pressure, means and extremes, and the sunshine record — the number of hours each month when the sun shone.

All these statistics find practical uses. Take the sunshine record: A housekeeper is filled with indignation by an abnormally heavy gas bill. She compares the charge with that of the preceding month and then, if she is a careful manager who keeps her receipts, with the account of the same month a year ago, and proves to her own satisfaction that she has been over-charged. With these old bills as evidence she goes to the gas company's office to demand an adjustment.

"How is it possible," she inquires, "that we burned six dollars' worth of gas last month, when just a year ago in the same house, with the same number of occupants, our bill was two dollars less?"

Occasionally, of course, the meter is at fault, and the consumer has a just grievance; but generally the company can explain the discrepancy in a way that leaves no ground for dispute. The complaint clerk reaches for his weather records; probably he has had to answer similar complaints many times since the monthly bills were mailed.

"Madam," he answers, "the last month had an unusual number of rainy or cloudy days on which you had to use your lights early. The same month a year ago was favored by an unusual amount of sunshine. According to the Government's figures, last month had only 166 hours of sunshine compared with 250 hours a year ago. That, you see, represents just about the difference in these bills."

Last fall the Weather Bureau was asked to tell the average dates when the ground froze in each part of the country. The request came from one of the largest manufacturers of metal fences in the world. By reference to its records, the bureau was able to furnish this concern with information which served as a basis for its selling campaigns, and through which the company expects to eliminate an immense amount of waste motion.

FORECASTS BY MAIL AND TELEPHONE

To the general public the Weather Bureau is best known through its daily forecasts and weather maps. Nearly 90,000 of these forecasts are mailed every day, and the telephone makes this information available, within an hour from the time of issue, to 5,000,000 persons. This mail and telephone service is distinct from the distribution effected through the press associations and the daily papers. In many rural sections the telephone

anies facilitate the dissemination of information by connecting, at a l time every day, all the subscribers certain line with a central office, so all points get the forecast simul-usly. Fifteen thousand farmers re- this daily telephone bulletin in alone.

ery day four thousand forecast and two thousand weather maps it from the New York City bureau, ı is the largest distributing point to Washington; and this number ies barely one tenth of the demand. hundred banking, bond, and pro- houses in New York City send mes- rs every morning to bring them the ıer maps as soon as they come from rinting machine of the local bureau. ıe office of J. P. Morgan & Co. a salaried employee devotes most of ime to studying these reports in relation to the far-reaching interests ıt banking firm.

: UTILITY OF A WEATHER BUREAU

e multitude of humbler services rmed by the Weather Bureau in a city is illustrated by the flood of ıone queries that reach the New York . Answering these takes all the of one man; on some days they ıer seven or eight hundred. Most of come from persons who have prac- uses for the information and need it r than it would reach them through egular channels.

e of the first calls of the day, per- comes from the local plant of the ıt yeast company in the country. The ger asks what the temperature will eleven o'clock the following morn- The science of meteorology could ıt to no severer test; and the effi- y of the Government's experts is nstrated by the fact that their :rs, except on rare occasions, prove :t to within one or two degrees. The nation plays an important part in rocess of ripening the yeast.

e manager of a restaurant which three thousand persons a day asks n early forecast before ordering his ies for the next twenty-four hours. If the prediction is rain or snow he curtails, because inclement weather reduces the daily number of his patrons by from four to five hundred. If a hot spell is coming he doubles his orders for green vegetables and ices and cooling drinks; in expectation of a cold wave he plunges on meats and baked beans and hearty soups.

The head of a concern that operates sixteen haberdashery stores throughout the city telephones for information which enables him to regulate his window displays and his daily advertisements. Obviously, a cold snap must not catch his stores with their show windows full of summer garments, nor must a season of dry, hot weather set in just after he has devoted several hundred dollars' worth of newspaper space to the merits of his raincoats and umbrellas.

THE PROBLEM OF PERISHABLE FRUITS

During the berry season the retail grocer who understands his business studies the weather forecasts with unusual attention. It is a season he dreads. He must handle small fruits to keep the good will of his customers, but his losses from berries that spoil frequently wipe out his profits. Strawberries, in particular, are so perishable that few customers will buy them without a personal inspection. For this reason a rainy day which keeps the housewife indoors generally cuts the strawberry sales in two; and if the dealer has not taken warning from the previous day's forecast and reduced his purchases from the commission house he finds himself with an over-stock which, not infrequently, he is obliged to sell below cost or dump them into his garbage cans.

The average weather expert is full of enthusiasm for his calling — a fact, by the way, which may explain why the Government has been able to get efficient, conscientious service in return for salaries that average only $1,070 a year. He looks forward to the time when the big commercial enterprises will find it profitable to employ their own meteorologists; and already there are signs that this day is at hand. One of the largest forwarding houses in New York recently received permission for two of its employees to spend

several weeks in the office of the local bureau familiarizing themselves with the details of the service.

ROUTING SHIPMENTS BY FORECASTS

The shippers of perishable goods were among the first to appreciate the practical importance of the Weather Bureau. Merchandise may be several days in transit, and the necessity of preparing for weather conditions that may be encountered during a long journey calls for expert knowledge of meteorological geography. The bureau will furnish the records and forecasts, but the shipper must work out each separate problem for himself. It is not the mean temperatures he must guard against, but the extremes. In this he is guided mainly by the data which the bureau has been accumulating for the last twenty or thirty years. He determines the danger points and then consults the special long-distance forecasts which the weather men in his home town will figure out for him. For example, in preparing to send a carload of bananas from New York to Buffalo during the winter, the shipper would ascertain what the lowest temperatures were likely to be in the Pocono Mountains or the Mohawk Valley, depending upon the route chosen. Recently the Department of Agriculture came to the aid of the wholesale fruit dealers and prepared a bulletin that showed the extremes of heat and cold which the various fruits can endure without injury. This report reveals that the banana is by far the most delicate of perishable merchandise, or, at least, of merchandise that is handled in large quantities. Bananas are soon spoiled by exposure to a temperature lower than 58 degrees Fahrenheit, or higher than 65 degrees. Apples, the hardiest fruit of all, resist a temperature several degrees below freezing.

A fair working knowledge of meteorology is a necessary part of the equipment of every large cotton dealer and every grain dealer. Until the Government proved that it could do this work far better than any private concern, however well moneyed, many great houses in New York and Chicago maintained expensive systems of their own, which gave them a tremenduous advantage over smaller rivals. Now, the special service that the Weather Bureau furnishes for the exchanges in New York, Chicago, New Orleans, and other important cotton and grain centres gives the small dealer an equal opportunity, provided he knows how to apply the information.

All legitimate branches of business desire a stable foundation, standard conditions, and a minimized element of chance. Excepting violent political disturbances which presage war, the cotton and grain markets of the world owe their widest fluctuations to beneficent rains and devastating storms. And because, with scarcely an exception, such meteorological phenomena are now accurately foretold, these businesses have acquired a firmer basis and less opportunities for "wild cat" speculation.

HANDLING THE WEATHER "NEWS"

Every market day, an employee of the Weather Bureau is on duty at the principal exchanges of the United States to handle the weather news that comes by direct wire from stations throughout the country. Generally this information is displayed by means of an immense outline map on ground glass which the man from the local bureau covers with figures that indicate the precipitation and the average temperature at each weather station during the twenty-four hours ending at eight o'clock each morning, and the lines of barometric pressure surrounding the storm centres which the weather men call "lows." The progress of these "lows" from the time of their first appearance on the Pacific Coast to their final disappearance in the Atlantic marks the paths of weather changes across the continent, and the average cotton and grain trader soon becomes expert in figuring out these probabilities independently, when necessary, of the official governmental forecasts.

The 4th of March, 1909, brought a snow storm that was memorable not for human suffering nor property loss, but for an unprecedented prostration of wire communication over the territory east of the Mississippi River. President Taft was being inaugurated in Washing-

and not a newspaper in the country elected him was able to get the news. ıout doubt it was one of the most ıal inauguration days in the history :he Nation; but nowhere was its m darker than in the lofty aeries pied by the men of the Weather ice. For the bureau had failed to adequate warning of what, while it d, seemed almost a national catas- he. Yet this mistake proved a piece ɔod fortune, not only for the bureau, for thousands of persons who, up to time, had not appreciated the prac- importance of its work. It started ɔntroversy which gave the service ty of wholesome advertising.

ıis is how it worked out: Before ral million newspaper readers had to forget the inconvenience of that t gap in the news of the world, a ızine writer took the inauguration storm as his text and constructed an ment to prove that the Weather ɜau was not giving the people of the ed States adequate return for the on and a half they spent every year naintain it. The article attracted attention, and naturally the weather were disturbed. They knew that esented a false conclusion based on a ng percentage of exaggerated failures; ıey set about contradicting it with an / of facts and figures.

NG MILLIONS THROUGH THE BUREAU

ıe evidence they collected surprised the bureau's best friends. All over country boards of trade adopted ıtory resolutions; farmers and shippers merchants and engineers and con- ors wrote to the papers declaring value of the service in terms of hard . California sent word that by taking ntage of a single cold wave warning :itrus fruit growers of that state had 1 $14,000,000. Ship-owners testified the storm warnings displayed at : hundred points along the sea coast on the Great Lakes had saved lives property beyond estimate. Warn- of one hurricane that swept in from West Indies had detained in port ·ls valued with their cargoes at more than $30,000,000, a large percentage of which must surely have been lost if the storm had caught them far from shelter. Flood warnings along the Mississippi in a single season had saved, accord- ing to reliable estimates, property worth $10,000,000. But from a purely financial standpoint even these figures seemed insignificant beside the report that came from the produce dealers of New York City. On the basis of statistics compiled by seventy-five lead- ing commission houses, these dealers declared that the weather warnings of the preceding year had saved 5 per cent. of the perishable produce handled in New York City, a saving valued at $20,000,000. If produce dealers throughout the country had given to the weather forecasts the same attention they received in New York, a conservative estimate on this basis valued the services of the bureau to this one industry at $100,000,000.

When the Government's meteorologists recovered from the surprise of this over- whelming vindication they gathered these resolutions and reports and newspaper editorials in a printed pamphlet and sent a copy to the Committee on Agriculture of the House of Representatives, which was preparing to investigate the Weather Bureau in response to what its members conceived to be a popular demand. The investigation never was started, but the Committee on Agriculture a few days later recommended an increase in the annual appropriation for the work of the bureau.

I have recalled this episode to illustrate the popular estimate of the service that prevailed five years ago. Those who con- tributed to this symposium of praise had considered only the forecasts, or, rather, a small proportion of the forecasts — the "warnings" that signalled danger. To- day, the Weather Bureau's chief harvest defies statistics. It comes, not from the prevention of loss by storm and flood and Arctic blasts, but from the efficiency and economy that has resulted from adapting our daily occupations to meet the weather changes as they arise, not at rare and mem- orable intervals, but day by day. And along these lines the students of meteorology foresee the greatest triumphs of the future.

A HOME AND A CHANCE IN LIFE

HOW ORPHANS ARE NOW "PLACED OUT" IN GOOD FAMILIES TO GROW UP AS NORMAL CHILDREN INSTEAD OF BEING HERDED IN BARRACKS-LIKE INSTITUTIONS — "FATHERS OF HUNDREDS," AND SOME DISTINGUISHED MEN WHO HAVE RISEN TO EMINENCE FROM ADOPTED HOMES

BY

ALDEN FEARING

THE census of 1910 shows that 21,000 orphans or dependent children are cared for by societies and that 40,000 are cared for in private families. In Massachusetts alone at present 10,000 orphans are under some form of state supervision. One authority estimates that more than 90,000 dependent children are in institutions (besides 25,000 delinquents and defectives), and 50,000 more in private homes. How many more there are that ought to be taken care of, no one knows, but even these conservative figures indicate the vastness of the problem.

Shall we continue to house these children in barracks till they become old enough to earn their own living, or is there a better way?

Placing-out is no new thing, but it is only during the last few years that it has become the chief article in the creed of the more advanced and intelligent workers for child welfare. "The homeless child for the childless home" has become their cry, and "supervisory inspection" is the chief principle of their operations.

"Any kind of a home is better than any kind of an institution" is an epigram that contains a grain of truth and two grains of falsehood, for a child is better off in a good institution than in a bad household where he or she may be subjected to cruelty, exploitation, neglect, or worse. The movement of late years has been tending toward the ideal of placing-out under careful and continued supervision.

The direct care of destitute children by American municipalities proved a failure, as a rule, before 1875. In 1858 there were three institutions in Massachusetts with 2,500 inmates, half of whom were children. The State Board of Charities made an investigation in that year, and the report referred to the inmates of these asylums as "a motley collection of broken-backed, lame-legged, sore-eyed, helpless, and infirm human beings." The children were packed like sardines in double cradles and were cared for by pauper inmates or were indentured to incompetent people with no credentials.

That report started something, and the Massachusetts State Board of Charities has been on the reform war path ever since. Thirty years ago the Monson School for Dependent Children was abolished and the size of the State Boys' Reformatory was reduced one half. Since then more than a dozen institutions have been closed, including the two homes of the Boston Children's Aid Society, the home of the Boston Mission, and the Boston Female Asylum. No new orphan asylums have been built within the last few years, and placing-out under state supervision has been generally adopted. As a state, Massachusetts has probably gone further than any other in substituting homes for institutions, and the system of supervision by a State Board of Charities has proved eminently successful. The Board maintains a large corps of agents and visitors and coöperates with the private placing-out societies. In one year the state expended $346,000 for boarding-out; Boston spent $75,000, and private organizations in the state $50,000 more — a total of $471,000.

In the middle of the last century the New York Juvenile Asylum, the New England Home for Little Wanderers, and the New York Foundling Asylum sent children West in carload lots, and gen-

erally lost sight of them. Then children's aid societies were organized in New York, Baltimore, Boston, Brooklyn, Buffalo, and Philadelphia, to conduct this sort of wholesale emigration. The New York society alone sent out about 1,000 children a year from 1854 to 1875. That this method was largely successful was due to the fortunate conditions that awaited the children in a new country rather than to the excellence of the plan.

After 1875, various states took steps toward supervised placing-out. In 1897, Indiana passed a law prohibiting the retention of children between the ages of three and seventeen years for more than ten days in any poorhouse, and a state placing-out agency was established. A similar law was passed in New Jersey in 1899. Many other states have since followed suit, but some still permit the retention of children in county almshouses. New Jersey further adopted a system under a State Board of Children's Guardians by which no state orphanage was maintained, but board was paid to private families. At about the same time the Cincinnati Children's Home and the Cleveland Protestant Orphan Asylum adopted the placing-out system and began to use their buildings only as temporary shelters for the children.

As the idea spread it took on various forms in different parts of the country. Michigan adopted a placing-out system as early as 1873, including the use of state schools. This plan was adopted, with some modifications, by Minnesota, Wisconsin, Rhode Island, Kansas, Colorado, Nebraska, Nevada, Montana, Texas, and South Dakota. Wherever this system has been conscientiously followed it has proved most successful.

In Ohio, Indiana, and Connecticut a county home system has been employed with less success, but Ohio has recently taken steps toward the adoption of the Massachusetts system with some modifications. Under the State Board of Charities, there will be state direction, inspection, and supervision of all child-rescue agencies, orphanages, etc., a placing-out agency, and a registration bureau for all dependent children in the state.

Next to the Massachusetts and Michigan plans, that of New York has proved most desirable and, with recent improvements, bids fair to be the most satisfactory of all. It involves state aid to private institutions. In the placing-out work the societies act as agents for the public authorities, and in such cases are reimbursed from the public funds. California, Maryland, and the District of Columbia have similar systems, and Pennsylvania places out children through its Children's Aid Society.

A HOME FOR $2.25 A WEEK

Placing-out is a term somewhat loosely used to include boarding-out, temporary placement, and placement with a view to adoption. Boarding-out is practised as a regular method of handling orphans in Massachusetts, Pennsylvania, and the District of Columbia, and to some extent in California, New Jersey, and elsewhere. About $2.25 a week is paid by the state authorities or their agents for the board of one child. This is more expensive than the per capita cost of keeping a child in an asylum, but requires no investment in an orphanage plant.

The old way of placing-out was by indenture contract, which made the child practically the peon of the man to whom he was apprenticed. This method, and all limiting contracts, are falling into disuse, the societies having found it more satisfactory to reserve the right to remove a child at discretion, without any formal process whatever.

Placing-out is conducted chiefly by societies specially organized for that purpose, though most orphanages now have their own placing-out departments. The greatest placement agency of all is the National Children's Home Society, which is a federation of thirty-two state societies. This federation finds homes for about 4,000 children every year, and now has 20,000 under its combined guardianship.

The New York Children's Aid Society is perhaps the best example of a placing-out agency operating on a large scale. It was founded in 1852, and the following figures tell the story of its humane work: Homeless children and orphans placed in families in the country, 29,500; older

boys and girls placed in situations in the country at wages, 26,681; runaway children restored to parents, 10,868; persons in poor families assisted to reach friends and rural employment, 49,308; total, 116,357.

Of this number about 87 per cent. remained in the country and made good.

ORPHANS THAT BECAME EMINENT

On August 2, 1859, a company of twenty-six children were taken by this society from the almshouse on Randalls Island and were placed in farm homes in Indiana. Of their careers a fairly complete record was kept, and of these Nos. 12 and 13 are worthy of mention:

John Brady, half-orphan, was deserted by his father at the age of ten years. He was placed with Mr. John Green, of Tipton, Ind., and remained on the farm until 1867, when he left to teach school. In 1870 he entered Yale; he graduated in 1874 and entered Union Theological Seminary. After he was ordained he went to Alaska as a missionary. In 1897 he was appointed governor of Alaska by President McKinley, and was reappointed by President Roosevelt, serving three terms.

Andrew H. Burke, an orphan, was placed, when ten years old, with Mr. W. D. Butler and later transferred to Mr. E. K. Hall, of Noblesville, Ind. In 1863 he joined the Union army as a drummer boy. In 1868 he entered De Pauw University at Greencastle, Ind.; from 1881 to 1884 he was a bank cashier. He went to North Dakota, where he was elected a county treasurer, an office which he held continuously until 1890, when he was elected governor of North Dakota.

The report of the society for 1913 gives an interesting list of other notable men and women who began life as placed-out orphans. The list includes two members of Congress, a justice of the Supreme Court, nine members of legislatures, two mayors of cities, thirty-four bankers, nineteen physicians, two college presidents, twenty-four clergymen, thirty-five lawyers; and many other professions and lines of business are honorably represented. Since the beginning, more than 5,000 wards of this society have entered the Army or Navy. During 1913 the New York Children's Aid Society gathered in from the streets 539 orphans or deserted children and put them in good homes. The statistics of other societies are almost equally interesting, and the reports contain absorbing stories of the children's lives.

The Children's Aid Society of Pennsylvania has made a special effort to save the lives of weak and ill-nourished babies by a system of wet-nursing that utilizes carefully selected certified wet-nurses.

The Boston Children's Aid Society has formed a coöperative alliance with other societies to divide up the state and thus save duplication of effort and make possible more intensive work.

Although placing-out and institutionalism are fundamentally antagonistic, the better orphanages are now maintaining placing-out departments. For example, the Hebrew Sheltering Guardian Society of New York established a boarding-out bureau in 1905. About 300 children were boarded out last year, and more than 1,500 children have been cared for in this way since 1905. Even the great, conservative Roman Catholic St. Vincent de Paul Society has begun to make use of the placing-out system in certain cases.

WHY HOMES MUST BE INSPECTED

Now wherever the placing-out system has failed — and its opponents have a real case against it — the failure is invariably traceable to lack of investigation before placement and to lack of oversight afterward. Unquestionably, this carelessness has led to abuses before which the defects of the orphanages of the last century pale in comparison. Neglect and ignorance on the part of the foster-parents have ruined many a young life. Deliberate exploitation of orphans for immoral purposes and for child labor has been far too common. To guard against such abuses, the most painstaking inspection is imperative. The crux of the whole situation is right here — the great divide between the old way and the new. Two true stories will illustrate these dangers:

A worker in New York told me of the case of a girl of ten or twelve who was placed in a family that was known to be

respectable. A belated inspection revealed that, though there was nothing personally wrong with the foster-parents, they were neglectful and careless of their responsibility and allowed the girl to visit the room of a male boarder — a school teacher. It developed that this man was a moral degenerate. The results, which need not be dwelt upon, would have been quite avoidable under a thorough system of inspection.

At one time a large number of orphans were obtained from various sources by a community of Russian Jews in South Dakota who organized them to perform their agricultural labor. They lived in sod huts with dirt floors and had practically nothing to offer in the way of home life. Following a disclosure of these conditions, the legislature of South Dakota passed an act forbidding the placing-out of children in that state by societies except on giving a bond for $2,000 in every case. Compulsory inspection naturally followed.

SOME OBJECTIONS TO PLACING-OUT

Lack of preliminary examination, too, may result in harm to the community to which unfit children are sent. At the last meeting of the Massachusetts Conference of State Charities, held in Northampton, a serious opposition to the placing-out system developed among rural workers who believe that state wards are an undesirable influence in their communities. Too often the dependent child brings disease or degeneracy into a group of children that previously were morally and physically clean. The experience of some communities in this respect has been most disquieting, and earnest protests against the system have come from teachers, clergymen, and parents.

It has become evident that at least three forms of inspection are necessary: (1) the preliminary study of cases, with physiological and psychological examination; (2) the careful selection of homes, the requirement of satisfactory credentials, and the firm rejection of all requests from homes that are not fully up to standard; (3) continued, frequent, thorough supervision after placing, and the keeping of complete records in every case.

Nearly all the placing-out societies have been delinquent in these respects, but the standard has been raised materially during the last few years, and "adequate supervision" has become the cry of the prophets of the movement. To-day probably three fourths of the societies could show fairly satisfactory systems. State supervision, to standardize and supervise the work of the societies, has proved useful in Indiana, Illinois, and New Jersey.

But the societies are pretty generally reforming themselves. For example: The New York Children's Aid Society maintains a very complete system of supervision. It has resident agents in New York, Delaware, Iowa, Nebraska, Missouri, Kansas, and Texas who visit the children in their respective districts at regular intervals and investigate any complaints, removing the child at once should there be any occasion for it. In addition to this, local committees of citizens keep a general oversight of the children and report at once to the society's agent any case that calls for special attention. Fifteen trained placing and visiting agents are employed by this society, and the cost of this department of its work alone, in 1913, was $44,129.

A NEW PROFESSION FOR WOMEN

Such reforms have, of course, created a demand for trained workers — a demand that thus far is in excess of the supply — especially for college women. Formerly any sort of well intentioned person would do for this sort of work, the superannuated minister and the incapable woman with charitable impulses predominating. The salaries were low in keeping with the capacity of the workers. To-day the demand is for virile, educated, specially trained young men and women, and the salaries are approaching figures large enough to attract people of ability. Training for the work is now given at the New York School of Philanthropy, the Chicago School of Civics and Philanthropy, the Boston School for Social Workers, the Philadelphia School for Children's Workers, and at various summer schools and institutes in Maine, New York, Pennsylvania, Ohio, and Illinois.

The saving grace of after-inspection may be illustrated by a story told me by Dr. William H. Slingerland, now an agent of the Russell Sage Foundation, who for eleven years was superintendent of the Iowa Children's Home Society:

Two little boys, not brothers, were taken into a home in Iowa. One boy was strong and aggressive, the other quiet and studious. They mixed like water and oil, but managed to get along together so long as their foster-father lived and kept them under control. Upon his death the care of these two boys fell upon the not over-strong mother, and life became a burden to her. The two boys quarreled and fought without a truce, and the foster-mother was unable to exert the slightest control over them.

When she was on the verge of a collapse the visiting agent appeared. He diagnosed the situation and prescribed a separation of the two boys. At length the mother consented. The stronger of the boys was taken away to a farm, where he is becoming a good, steady worker. The other, left without bullying, has become a bright student, obedient, and a comfort to the mother. Two boys have been given a chance in life that were on the road to destruction before.

BOARDING A CHILD WITH ITS MOTHER

A kindred line of work deals with the placing-out of half-orphans — homeless mothers with babies. Probably nearly 50 per cent. of dependent children fall into this class. This work, starting in Boston and Philadelphia, was taken up by the New York State Charities Aid Association in 1893. Previously such homeless mothers were compelled to give over to foundling asylums the children for whom they could not adequately provide. This barbarous custom is still continued in some parts of the country. Aside from all other considerations of humanity it was found that this separation of a baby from its mother meant, in about one half of all the cases, the early death of the child. The purpose of the new agency was to enable an unmarried mother, a widow, or a deserted wife to find a situation of domestic service in which she could keep her child. Despite the skepticism with which the plan was received, it has proved successful. In eighteen years, 4,513 mothers were provided for in this way by the association, and were enabled to keep their children with them. At the present time the number of situations secured averages about sixty-six a month, and this branch of the work occupies the entire time of a staff of five persons at a cost of $5,000 a year. In 1913 the Children's Aid Society of Pennsylvania found situations for 316 destitute women with children.

"In the long run," said Rabbi Hirsch, "pensioning mothers is cheaper than building almshouses, jails, and reformatories." Helping them to self-support is better yet.

A FATHER TO HUNDREDS

Down in Houston, Tex., Mr. Judd Mortimer Lewis, a newspaperman, has used the columns of his paper to conduct a child welfare campaign. He has personally placed several hundred homeless children in childless homes, and has been able to exercise great care and discrimination. He says: "I believe most sincerely in the efficacy of individual and unorganized home-finding work. I do not believe in charitable societies gathering up whole carloads of little folks and shipping them south or west to be distributed with as much haste and as little trouble as possible."

Such men as Mr. Lewis are doing a great work on the firing-line, though there is always the difficulty of thorough supervision and the question of the future in case the moving spirit should pass away.

Mr. Charles Page, a wealthy oil producer of Tulsa, Okla., has founded a private asylum of his own and has taken about three hundred homeless children under his personal protection. "Most of the work at present," writes Mr. Page, "is in taking widows with a family and building cottages for them. We have a kindergarten and school for the children, so that the mothers can go out and work all day. If they run out of necessities they are supplied from our store house. We furnish them with free gas, water, milk, butter, and vegetables raised here on the farm,

:anned goods which they help to ıp in the fall. For the orphaned en we have a regular home, with -mothers and teachers. Our home ɜen running now for about six years. ; to the future of these children, of them will work on my railroad, ɜ farm, in my machine shop, green-ɜ, canning factory, dairy, etc., doing vork as they are adapted to."

haps an even wiser plan is that of '. M. Smith, of Oakland, Cal., who ranged to have his wards provided fter his death. He established a for girls at Oakland in 1902, which ɩ400,000, and which carries an en-ent of $400,000. After his death the will be administered by a board of es. Its equipment consists of a of thirty-two acres, twelve cottages ed for families of eight girls each a matron, club-house, gymnasium, , playground, etc. Seventy-two live here, on the average, and e all these luxuries, with good s and the best of food, the cost of enance is only $276 a year per girl. le from such efforts, many individ-of course, are coöperating directly he societies. Hon. Henry G. Davis, ample, contributes regularly to the ıt expenses of the West Virginia en's Home Society, and has given ther $35,000 to this work.

1907 a magazine, the *Delineator*, d a child-rescue campaign, under ıpervision of Mr. James E. West, secretary of the Boy Scouts. In years about two thousand children placed in homes. The campaign oncluded in December, 1910, and t was over nearly two hundred more ations for children were received and turned over to the State Charities ssociation.

WILL ORPHANAGES DISAPPEAR?

he placing-out system is extended nitely, what will become of the n asylums? Some minds run in itional grooves, and the millions have been invested in institutions character are not to be disregarded. story is told of a pious philanthropist who prayed, "O Lord, send us many orphans that we may build a new wing to the asylum."

A former secretary of the Associated Charities of a city in New York told me that he once asked one of the trustees of an orphanage for more children to place in childless homes. "But, man!" exclaimed the trustee, "you won't leave us anything to run the orphanage on." The asylum was receiving a per capita rate from the state and the city, and reducing the number of inmates meant cutting down the income.

A delicate problem is presented here which can be solved only by sympathetic coöperation and by the fostering of common motives of humanity. At any rate, the orphanages are not likely to fall into decay, for even the placing-out advocates admit the value of the institutions in certain cases, and it is not probable that they will prove to be too large for the increasing number of charges that require temporary shelter. At the worst, these costly plants can always be turned into schools for defectives.

Meanwhile, the wave of reform has swept over the orphanages themselves, and such institutions as the Hebrew Sheltering Guardian Society's asylum at Pleasantville, N. Y., the Children's Village of the New York Juvenile Asylum at Dobbs Ferry, N. Y., the New York Orphan Asylum Society's farm at Hastings-on-Hudson, N. Y., the Leake and Watts Orphan Asylum at Yonkers, N. Y., the New York Catholic Protectory at Westchester, N. Y., and its agricultural school at Lincolndale, N. Y., give evidence of the enlightened spirit that now actuates institutional workers.

In many of the institutions the old barracks have given way to the family unit and cottage system which, though not a reproduction of the home, are a great improvement upon the older types of buildings.

There are hopeful evidences that these two worthy factions are gradually drawing closer together toward the ideal of coöperation, and the struggle now is largely for better methods, centralization, standardization, and trained supervision.

GUTZON BORGLUM

A MECHANIC, HORSEMAN, POLITICIAN, AND APOSTLE OF AMERICAN ART

BY

GEORGE MARVIN

WHATEVER you do after I am gone," said General Sheridan, "don't put me on a horse like that."

From the windows of his house near Scott Circle in Washington the old Civil War veteran used to see every day the bronze effigy of General Scott heading stolidly out of the Mexican War of 1846 down Sixteenth Street toward the White House, astride his Noah's Ark steed. And the soul of a great cavalryman revolted at the idea of riding thus into posterity.

So when, in the course of time, the Washington Art Commission was on the eve of accepting a model for a Sheridan statue of the same tin-soldier type as now commands Scott Circle, Mrs. Sheridan carried out the wishes of her husband in refusing point blank to accept it. Her objection was sufficient to halt plans which had already been dragging along for six or seven years. At this juncture, through the intermediation of President Roosevelt and Mrs. Herbert Wadsworth, both lovers of horses, another sculptor, with a queer name, was introduced to the Sheridans and afterward to the Commission. His original ideas found favor at once. The contract with his predecessor had resulted, after seven years, in only a plaster model. Nine months after this sculptor with the queer name was commissioned to go on with the work, he unveiled his completed equestrian statue in the newly named Sheridan Circle down at the end of Massachusetts Avenue. If "Phil" Sheridan could see that colossal image of himself he would rest content. For he is riding down to posterity on a real horse, his own horse, which brough him from "twenty miles away" to turn defeat into victory at Cedar Creek. The monument is a faithful commemoration of its subject; it is also a particularly characteristic work of the sculptor who made it.

Gutzon Borglum is a real man. Sculpture is one of the ways, the chief way, in which he expresses himself. He put "Phil" Sheridan on a real horse because he himself knows real horses from years of roping, saddling, and riding them in the West. It was as a sculptor of horses that he first became generally known with his stampeded mares now in the main entrance hall of the Metropolitan Museum of Art, in New York City, the fruit of actual experience translated by genius into a permanent form of art. There a herd of wild horses are galloping helter-skelter, their flight directed by the masterful riding of a man who clings, with a beautiful play of muscle, to the back of the leader. Hercules may thus have controlled, in a legendary past, the man-eating mares of Diomedes, as the title of the group suggests; but Mr. Borglum knows that in his own vivid present a Nevada Indian or an Idaho horse thief does just so steer the panic-stricken rush of a clump of mustangs.

When he began to model the Sheridan he had young Captain Philip Sheridan of the Fifth Cavalry, at the same time of life and much the same figure as his father was during the Civil War, come up to his farm at Stamford, Conn., and ride for him. Time after time Captain Sheridan reined back Mr. Borglum's full-blooded Arab model to its haunches at the end of a sharp gallop until the sculptor-horseman's keen eye had caught all the details of suddenly arrested motion. So in place of the automatons other generals dead and gone are riding lifelessly in many a public place, Mr. Borglum has made one general live at the most dramatic moment of his life on the back of a living horse.

Mr. Borglum's other sculptures evidence,

in its separate but unmistakable way, same insurgent human spirit with h he upset the convention in equestrian ıments. Tired children and weary ars come and sit on the stone bench le his Lincoln in Newark, and that : presence which was often so lonely :e comes now closer to other genera-. Lowell, in his "Commemoration " might have written of this statue, the martyred President whom it also nemorates,

ow beautiful to see
ce more a shepherd of mankind indeed!"

Newark Lincoln is monumental, not use it is huge and set up in a high : where you must lift your eyes and : your neck to see it, but because it is rerent re-creation of a noble face and e set down where you see it level-. Mr. Borglum says the greatest com-ent he ever heard about it was from nel Roosevelt who, after surveying statue on all sides, suddenly burst out , "Why, this doesn't look like a mon-nt at all." As in the Sheridan, the ect is above all humanly realized; the : true instinct which in the former has avoided the movement which is : violence has here avoided the re-that is lifeless.

ost of Mr. Borglum's work is done at ıford, Conn., where, on his three-lred-acre farm, he finds the peace he s. There, in a big outdoor studio : shop, he fashions beings out of clay life, and there he worships his house-gods. He is a man of many interests. l recently he has been an active mem-of the state committee of the Pro-ive Party, and is always keenly in-ted in municipal, state, and national ics. A look at any one of his statues rs that there is nothing impassive it his art. In his attitude toward pub-ffairs he is equally alive, believing, as ays, that "the man of position or th who remains passive in the public going on about him is in the same class the man who feigns sleep with a bur-in the room." And this theory he es out in wider fields than politics. public spirit has helped to bring good roads to Fairfield County, and he has organized a company to run motor-busses over three of these smooth macadam highways from Stamford to different points on the New York State line. The same man who translated into a plaster group the tragedy of human perversity and misunderstanding, poetically entitled, "I have piped unto you, and you have not danced" — an intangible truth which each beholder must interpret for himself — the same man who could do that designed the big motor-trucks which run through the woods and by the fields which his artistic success has won and bought. And he is as proud of the roads and trucks as he is of his thoughts in plaster and marble.

A large measure of success has already come to Gutzon Borglum, earned by hard work, through hardship and tribulation and despite his resolute independence of classic tradition. Other rewards await him. He is in charge of the sculptural decoration for the cathedral of St. John the Divine, and is now at work on groups for the New York State building at the San Francisco Exposition and for the interior court of the Hispanic Museum in New York City. The great statue of Francis Parkman, which the Canadians are to put up at Ottawa in memory of their American historian, Mr. Borglum has been asked to build.

Americanism with Mr. Borglum is indeed a kind of religion. He is, himself, an American through and through, born forty-seven years ago of the Danish parents who gave him his Scandinavian name on the border of Idaho and Nevada. The priests in a Catholic boarding school in Kansas discovered his talent and kept him drawing pictures of saints and madonnas until he ran away back to California. Thus already as a boy he had begun to revolt against traditions and dead forms, preferring to learn from living things about him. His Americanism survived three years in the studios of Paris, where he worked his way through doggedly, skeptical of the benefits received and repelled by the looseness of life in the Latin Quarter. Spain gave him more as he dug up old stories of the great explorers, Columbus, Pizarro, Cortez, Magellan, and the rest.

But America did not appreciate him in turn until after his Indian statues and water colors had been discovered in a small shop on Bond Street, London, by the Duchess of Manchester and the lady who was then the Duchess of York but has since become the Queen of England. In his wild horses galloped away with the medal at the St. Louis Exposition and James Stillman bought them for the Metropolitan Museum. Gutzon Borglum woke up one morning and found himself fam

ART THAT IS REAL AND AMERICA

WHY WE SHOULD CREATE OUR OWN ART OUT OF OUR OWN NATIONAL HIST INSTEAD OF IMITATING THE WORK THAT PROPERLY EXPRESSED THE TRIUMPHS OF GREECE AND ROME

BY

GUTZON BORGLUM

TO DROP a plumb line into the depths of life, to find thereby the great emotions common to all mankind and to express them so that all mankind will understand the expression — this, I think, is what art is for.

More than this, art in America should be American, drawn from American sources, memorializing American achievement.

Opposed to both these fundamental facts stand untold wealth with unknown resources which annually create a market for the established accoutrements of ancestral respectability, seeking ancient evidence of every conceivable sort. Scarcely a tomb of antiquity has not been coveted, searched, or sacked, to meet the rapacity of our dollar kings and queens.

Anything old enough to fall to pieces becomes gilt-edged security to this annual flood of "art lovers." So great has been the need that hardly a respectable home of ancient standing in Europe has not been tempted and levied upon for old personal belongings.

Business men and art students jumped into line and into the manufacture of these counterfeit certificates of respectability. The story is one of the black pages of this New World's growth. It is so filled with make-believe and counterfeit that it may be said this has been the greatest ill that has come to our esthetic life. We are blind, false, and utterly incap of thinking alone — standing alon expressing ourselves frankly in ma affecting our personal life, taste, and sires; and in turn are mocked by pe who have dumped upon us their sec hand belongings. We are told by "antiquarians," the Fifth Avenue for the second-hand, that "we are artists;" "we haven't a right to thi "they will think for us." They tel what kinds of houses we must live in how to furnish them. Individual ta habits of occupant, and such foolish wl are ruthlessly brushed aside. This n ern antiquarian has his bias — a created by available supply — and b bent on working that supply off on client. And he succeeds in spending f ten thousand to a million, involving ev thing his antique resources contain must confess I do not sympathize with bank accounts which are levied agains build up and keep up this masquer I do regret deeply the reaction that cess of this sort has upon the young students, who often innocently fall tims to this lucrative trade of make-beli We see incoming ships loaded with second-hand or counterfeit art of the world. We see great enterprise bu under this levy from Egypt, Greece, Rome. We see the meaningless garl of the Beaux-Arts strung from cornic

MR. GUTZON BORGLUM

against homes made up with the spoils or counterfeits of some one else's home. There is something in this willingness to dine under a foreigner's coat of arms in an Italian palace in Nebraska, or with heraldic nobility in Rhode Island, that robs one of one's true nobility. There is such confession of incompetence that esthetics, and all the ennobling impulses that beget art, seem gone.

THE MARES OF DIOMEDES

IN THE METROPOLITAN MUSEUM OF ART, NEW YORK. THIS GROUP FIRST WON FOR MR. BORGLUM INTERNATIONAL FAME AND RECOGNITION

My philosophy tells me they have not ceased and I know that Nature loses a generation in debauchery without a murmur and replaces it by an awakened nation. I have quite involuntarily found myself first resisting and then opposing this deluge of counterfeits. And as involuntarily I became an insurgent aware also of the greatness of the step — and of how relentless the counterfeiters would grow against any one who has the effrontery to declare that a sweet, young, American child in all her natural charm and unrestraint is more lovely to look upon than a sleepy-eyed Assyrian or Greek rubbed from some wine cup or jug — or that the tales of Egypt or Crete can be to the builders of the state institutions of Missouri, Wisconsin, or New York superior to their own story.

I hope that this is sufficient to explain what I am really working for and against. I was born in the Golden West, reared in the arms of the Church, deluged with "saints to draw from," and suckled on Italian art: my slates were covered from end to end with portraits of Savonarola, Fra Angelico, and Wild Bill and Sitting Bull; I knew all equally well and admired them about alike; Dante, Angelo, and Petrarch were my intimate friends, with Crow and Sioux raiding all about. Into this was injected the legends of the Danes, poured into my ears by a Danish mother, while a father talked Socrates till the candles went out. I grew into manhood with this variety of ideals and of life from all the corners of the Old and New Worlds. Over it all, goodness and beauty and the emotions seemed to hover. And I remember very distinctly that beauty and form and the making of things all seemed to be a very idle kind of pastime until I

ɔrmed some definite ideals from life, quite apart from my own d then the work shaped itself to t life. And so, out of that has original intensity and ability, at essing itself for the purely reper- and then, through pondering and upon the meaning and mystery t has become definitely a religion. ɪndred years ago these two great

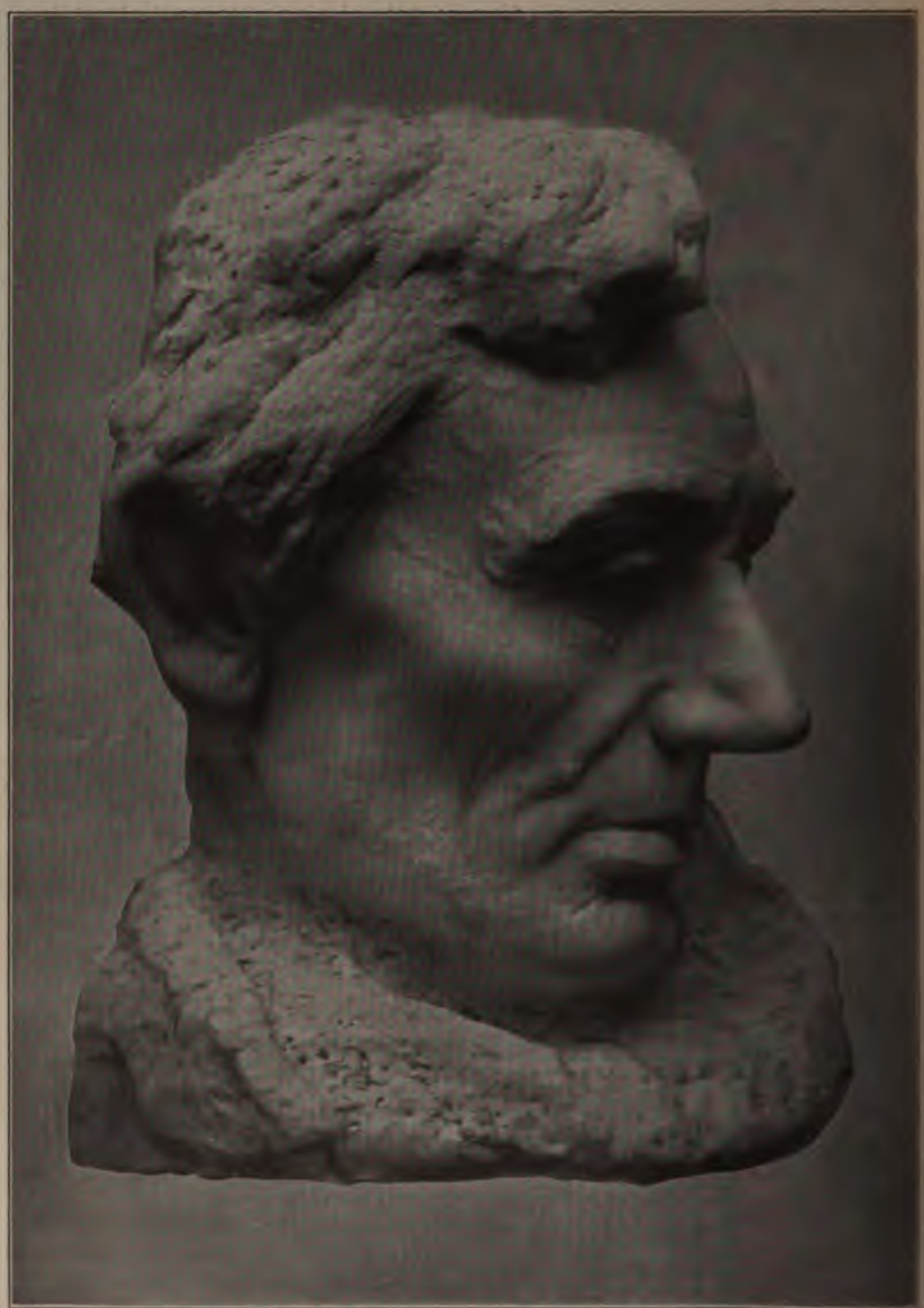
THE MARES OF DIOMEDES

AL IDEA IS THAT OF HUMAN MIND DIRECTING WILD BRUTE PANIC. THE TAMING OF THE MARES OF DIOMEDES WAS THE LAST OF THE SEVEN LABORS OF HERCULES

s were quite silent; only the nd birds and the seasons, bringing and sleep, gave action and color. ed, fearful man, with his babes, ɪp and down our great national — the rivers and the plains. story is that in all our land there than a million.

y, a half dozen gods reared their o the sky, stretched themselves, new Italy into history, smiled n, woke man as doctors wake rn babe. Galileo said, "We are Columbus said, "I'm going West it." Angelo and Leonardo said, re-draw the soul of man." For four hundred years Humanity has followed Columbus. We have built and are building, tearing down and rebuilding; and now, in this hemisphere which he discovered, a score or more republics are strewn from pole to pole, brought into life with all the wonderful travail that accompanies the coming into being of great peoples, each generation born into ideals hardly felt in the awakening. And the epics of Human ity came also on this side of the ocean and grew better and on a wider world-scale. So our land grew, yet Art seemed to be silent about it all, and I have asked and complained not a little of this lack and said we have a great story of our own and we should think and build these great moments into our monuments.

Monumental art must rank as world work. It must see, form, and in no mistakable terms express the flood of power that surges in the race when it rises to great heights. American artists should be seers and should give, serve, and complete the spirit and concept of Columbus — of Washington — of Lincoln. So Phidias



A HEAD WHICH IS AN INTERPRETATION

THE COLOSSAL HEAD OF LINCOLN PLACED BY AN ACT OF CONGRESS IN THE ROTUNDA OF THE CAPITOL AT WASHINGTON, D. C., CARVED DIRECT INTO MARBLE FROM UNPUBLISHED DATA IN THE SCULPTOR'S POSSESSION.

th his own day — so did the gyptians — so did Angelo. Rodin done what Angelo and Phidias their repective countries because sman of his greatness has lived in e, and in his Nation's history is his great voice. Consider what Bismarck and Rodin would have that is — think of what would ppened if Bismarck had carried o Berlin and made him superin- of public works, with definite o write the story of Germany's greatness! To France has been opportunity.

pirit of the hour is world building. nger hemisphere is just reaching ional consciousness. It is on the f soul achievement — struggling other freedom. It will succeed

as it has with freedom of conscience, political freedom, and freedom from the stain

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THE LONELINESS OF LINCOLN

AL CONCEPTION OF THE WAR PRESIDENT AS HE OFTEN SAT ALONE WITH HIS MIGHTY PROBLEM WAITING FOR THE LAST NEWS FROM THE FRONT

of slavery. We rise on a mightier tide. We have won and lost — we have enjoyed success. We have also bled, bled as only the stout-hearted can. We have rebuilt vastly more than has been destroyed — we have fulfilled Columbus's dream and opened the way to the East. Yet, on the side of social service, on the side of the record of our emotional experience, we have not begun to confide our story even to each other, much less to inform the world about it. We have in these four hundred years of colossal youth lived and relived epics, ranking with those of ancient Greece and Rome. And still the story of it all has not been put down and has yet to be written. Those of us who can afford it steal and borrow and beg the arms, the dress, the emotions of Greece and Rome. Too often we hang their rotting trophies upon our walls, ignorant of their origin, unacquainted with their meaning, and not even sympathetic with the emotions that produced them, bent only upon the paltry respectability that their presence argues.

Washington — Hamilton — set the seal of freedom here, so broad that all mankind is aiding in preserving it.

MR. BORGLUM IN HIS STUDIO

HE BELIEVES THAT A LIVE MAN CANNOT HAVE TOO MANY ACTIVE INTERESTS. PAINTING, POLITICS, FARMING, ROAD-BUILDING, ARE SOME OF HIS

Resolute Lincoln and his fighting aides established an equality absolutely necessary to complete the principles of a great, loving, forward race, and yet we have arrived at the year of grace 1914 with half a century gone since Lincoln became President and not an adequate word has been built into our national buildings to fix properly the history of his great accomplishments. Washington has been edited out of existence and is hardly known as he was to the people. Excepting St. Gaudens's figure called "Puritan" there

"TURN, BOYS! WE'RE GOING BACK"

THE EQUESTRIAN STATUE IN SHERIDAN CIRCLE, WASHINGTON, D. C., WHICH REPRESENTS GENERAL SHERIDAN, AT THE END OF HIS FAMOUS RIDE, REFORMING HIS MEN AFTER THEIR DEFEAT AT CEDAR CREEK

IMAGINATIVE ART
"I HAVE PIPED UNTO YOU, AND YOU HAVE NOT DANCED"

is scarcely a thing in art which gives us an estimate of those heroic men. We have not begun as a people to realize that things we desired honestly — liberty of conscience, freedom from European governments and from the stain of slavery — were things to be proud of; things to sing about; to talk about; to write about; to build around and build into our civic memorials; that they are ours and that they belong to no one else, and that these things and these things alone make us immortal; make us the envy of the world. If we have any art of any kind in song, in letters, in color, in stone or bronze, it should tell about these things; it should write them in bold lines annually across the page of our own history. It should imprint them upon our Federal, state, and city institutions. In fact, these great principles which make us a people should themselves conceive and shape and bring forth the institutions

ART IN PUBLIC SERVICE

OF THE MOTOR BUSSES THAT MR. BORGLUM DESIGNED AND BUILT TO RUN ON ONE OF THE FAIRFIELD COUNTY ROADS THAT HE HELPED A CONNECTICUT TOWNSHIP TO CONSTRUCT

selves and they should suggest and ggest the great life that we have beand are living.

my recent exhibition at Columbia ersity (practically the only one I have in America), I exhibited mainly and st exclusively what may be called, in common parlance of the land, "pipe ns." Among these are the "Mares Diomedes," a title found long after group was made. I have utilized a subject from the West — the stealing of horses. The method is, mounting a tractable horse, entering the band, and riding about quietly until the band follows — then leading them away. I stripped the horseman of garments, both to delocalize him and also to show the play of a fine nude figure on a nude horse. The name is a convenience — the motive of the group, mainly intense controlled action. The group, "I have piped unto you, and you

have not danced" (a name given to it by some visitor), represents a great world complaint — the great common lot of all — the grief of unappreciation — a tragedy I early found universal. Little individual effort in life is valued at its proper worth at the hour of its doing — the inaction and apathy of our friends is the greatest drag we have to carry.

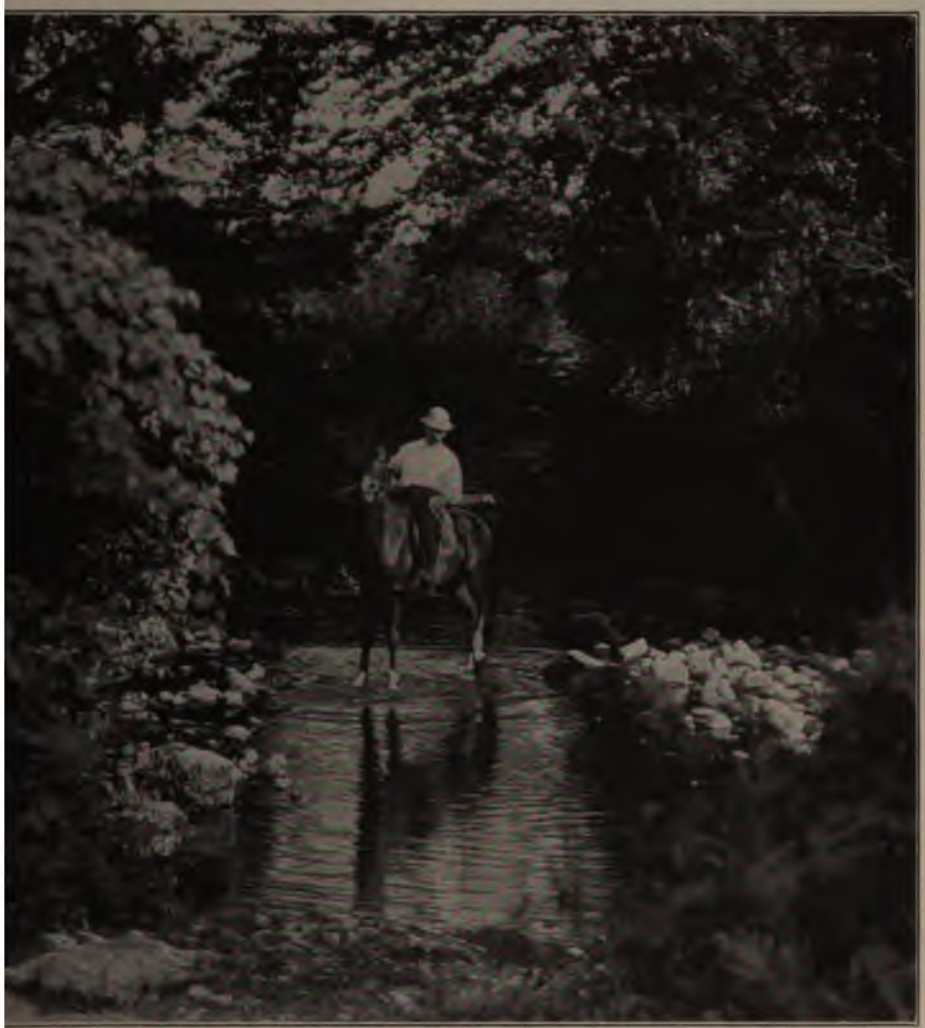
My Atlas is a woman because the burden of the world is not borne on the backs of men. It is not a slave's job. Nature has not even allowed man to carry it. It is borne in the arms, in the breasts, of women; and they reach up and receive it — on their knees, crushing them though it does, with a kind of benediction.

My seated Lincoln represents Lincoln as we might see him in his garden alone — as he would appear alone, as he would sit and think and look were he really alone. The placing of the figure at the end of the bench — the whole arrangement of the figure — is to get away from wholly false and artificial attitudes of the conventional commercial monument. The greatest compliment was paid to it by one of my antagonists, "a very prominent New York critic," who said, "It did not look like a monument." Another original

"BORGLAND"

ONE OF THE WOOD ROADS ON MR. BORGLUM'S 240-ACRE ESTATE AT STAMFORD, CONN.

ristic of it is that it is placed prac-
n a level with the eye. This
art world quickly recovered from
ow adopting.
eridan equestrian in Washington,



A SCULPTOR'S MODEL
UM RIDING THE THOROUGHBRED ARAB HORSE WHICH HE USES IN MODELING HIS EQUESTRIAN GROUPS

ich so much has been said, I may
deliberately composed to show
istible chain-shot character of
hil." He is depicted here assem-
broken army after its defeat,
is absence, at Cedar Creek.
the midst of groups of men, scat-
l irresolute, ordering them "back
ont."
atue is also set low and the inti-

macy that it inspires proves the wisdom of this innovation.

The colossal head of Lincoln, in the rotunda of the capitol at Washington, is a portrait made from observation of the many splendid pictures and the life mask by Volk. It was originally intended simply as a study. In fact I used the huge fragment of stone much as a boy would use a slate. It is a head in scale to a standing figure twenty-eight feet high. The forehead has been cut and re-cut a dozen times; grief, pleasure, anger, surprise, and mixture of these moods were studied — drawn in the stone and in turn cut away. The

structure of his skull is Greek, the nose was meant to be Roman before it was injured, the cheek bones were not high, though they seem so, his eye sunken; his mouth, when not set in sadness, was responding to his roguish sense of humor.

art; but, like all human experience, if conceived with reverence and sincerity, it may prove beautiful.

These are but a few of the subjects I have produced or have in hand. Any originality of which I am accused is simply

RUSKIN

MODELED AFTER A DRAWING MADE FROM LIFE BY THE SCULPTOR AT WINDERMERE, ON THE ENGLISH LAKES

The heroic figure in marble called "Consciousness of Maternity" represents just what the term implies. It is an effort to represent the consciousness of creation carrying with it all that that prophecy implies: hope, joy in that hope mingled with fear. I know of no other attempt at treatment of the subject in the history of

the unconventional in point of view. In making the mother and child — I took that subject up and began at the meaning of it all and so found in it something holy. Every subject admits of this. No matter how common, how Broadwayish, even, it may be, I know if it be dropped into the crucible and all its real aspects analyzed

SMITHSON

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as a poet will, some wonderful and quite uncommon point of view shows itself — there is no other trick.

Maeterlinck has somewhere said: "Sculpture should be one of the most exclusive of the arts. It should express certain rare and irreproachably beautiful phases of life, form, and mortal joy or suffering. Every plastic manifestation that fails of this is a species of lasting and inexcusable crime."

These few lines contain the clue for my activity in art and my insistence upon not being diverted from my purpose. Nature in all her primal wantonness is still bringing men into the world as little animals,

THE WONDERMENT OF MOTHERHOOD

A REMARKABLE CONTRAST IN TENDERNESS AND DELICACY TO THE STRENGTH AND VIBRANT ACTION OF THE "SHERIDAN" OR THE "MARES OF DIOMEDES"

· productive moments with a ing reverence for such produc- › this I may here add that there ualities necessary and insepar- :he production of a great work cerity, individuality, and rev- erence. Heaven demands that work of all kinds shall mean something — be beautiful — shall be the mind's effort to explain the heart — shall be of worth and value, shall be the hour's seal upon the esthetic progress of Humanity.

LATEST BUSINESS GOLD-RUSH

ON PICTURES HAVE PRODUCED THIRTY NEW AMERICAN MILLIONAIRES LAST SIX YEARS — A PRODIGIOUS INDUSTRY THAT FRENCH ART AND AMERICAN BUSINESS MANAGEMENT HAVE BUILT UP

BY

HENRY WYSHAM LANIER

ecently invited by a banker," ı man whose profession has for ıl years enabled him to study y the whole motion-picture "to be present at a conference s firm and a foreign 'movie' ı. It developed that this com- proposing to incorporate its usiness separately. They had ır six hundred thousand dollars up the United States end, and ted capitalizing this new branch llions — showing in detail from experience that they could in ıs lines make an annual profit o per cent. on this figure. I : anything very far out in their ither — though there are some its in the business from now on ficult to gauge in advance.

ay give you some notion of the ıpect of motion pictures to-

nderful story of a vast new in- s — an industry springing up as it were. Little wonder that n to resemble a Klondike rush, ew companies are popping up s, like mushrooms. The first cture machine was Edison's e, shown at the Chicago Fair in exhibited his improved pro- ı the pictures visible to an au- ad of to one person), before the yal Institution in 1896; and the odel was shown at the Eden Musée in the same year; even ten years ago the business as a whole was inconsiderable; whereas to-day — well:

(1) The total business of the whole industry last year was more than $300,000,000 — which is said to make it the fourth largest in the United States; and at least thirty brand new millionaires have been added to the roster by it.

(2) There were 5,000,000,000 paid admissions in 1913 to our more than 20,000 moving picture theatres — which show 96,000,000 feet of film each night, and literally speckle the whole country. (Mr. Talbot, in his excellent book, "Moving Pictures," tells of the Hazelton Picture Palace in a Hudson Bay post at the head of the Skeena River in British Columbia, where, in a storage cellar dug in a side-hill, an enterprising showman wears out his old films and his public until fresh supplies arrive — when the river isn't frozen — from Vancouver, a two weeks' journey.) A single motion picture may reach 15 million spectators — more than a company could play to in a "legitimate" production if it toured steadily for twenty years.

(3) American film makers will export this year probably 25,000 miles of pictures; and the royalty paid to Mr. Edison is said to amount to about $10,000 a week.

Beside such really incomprehensible figures, Nome and Ballarat and Kimberley seem like incidents. And the figures for 1912 were less than half those above, so the future has somewhat the bewildering aspect

of the astronomer's staggering picture of the solar system.

Naturally, too, as in anything so vast, the other aspects are even more important than this impressive bigness. For just reflect one moment what an influence in the mental development of this America of ours such shows must be, the more since a large section of this vast public rarely sees any other form of drama — often reads not a book in a twelvemonth.

A FEDERAL JUDGE IN THE "MOVIES"

And when a Federal judge not only permits the Thaw trial to be filmed by a moving picture operator, but poses for the machine in his chambers — we have evidently developed a new force in our society and civilization with which both the present and the future must reckon.

There may be some readers as ignorant as the writer was a short while ago: for their benefit let us note a few salient points in the history of this new toy and force which so absorbs the civilized world at present — for the "cinema," as they call it across the water, has captured Great Britain and the Continent as completely as it has North and South America:

THE FIRST MOVING PICTURES

It must be admitted that the early films were apt to be of the "cheap and nasty" order. At their best, they were "Mammy Washing her Child" or "The Gardener Playing the Hose"; at their worst they were such as to stir up newspapers, clergy, civic societies, and reformers of all sorts to such an extent that a wave of most drastic police regulation and censorship passed over the whole country, covering not only the subjects but the admission of minors, the fire protection, and the sanitary conditions. The motion picture is still branded in a large section of the public mind by this false start. Only within the last three years has its later development begun to redeem its name.

And deservedly. For with the whole world to select from, almost a majority of the first exhibitors specialized on crime and vice and indecency.

All these early films were short, never more than "one reel" of 1,000 feet, generally much shorter. But in 1898 some enterprising promoters, realizing at last that the business needed putting on another plane, made a spectacular production of the "Passion Play" (on the roof of the Grand Central Palace, New York, at a preliminary cost of $16,000) in three reels — an unheard-of experiment, for it took almost an hour to show.

It ran continuously for six months, was sold all over the country, and I believe is still popular. Despite this object lesson, most of the manufacturers kept to the easy and obvious road of supplying cheap melodrama and broad farce, with half a dozen poor actors and wretched scenery, for the innumerable five- and ten-cent theatres.

But about six years ago the moving picture play suddenly broke its cocoon. Paul and Williamson really led the way, in Great Britain; and, through the superior excellence of their studios and the perseverance with which they attacked difficult technical problems of scenery, lighting, and so on, they controlled the American market between 1900 and 1906: Williamson alone supplied nearly a hundred films a week to motion picture theatres in this country.

Still, however, the pictures were conventional, limited in scope.

HOW FRENCH ART CHANGED THE FILMS

Then suddenly French art and dramatic genius saw the chance in this new medium. Great studios were built at tremendous cost, full of most elaborate appliances: scenery equal to that of the finest regular theatres was prepared; the best French actors and actresses and the foremost dramatists were drawn into the productions; and, thus revitalized, the motion picture began to show with amazing swiftness of what it was capable. The French films drove everything else out of our market in the higher class theatres — only to be largely displaced themselves when American makers presently woke up to the magnitude of the opportunity that they were missing.

Some of the things being done to-day along the spectacular line are almost beyond belief at first hearing. For example:

lucing "The Battle of Gettys-
oo soldiers, regulars and militia,
ıits of that great struggle on the
tlefield; and in Pickett's charge
rth of black powder, to supply
pall of smoke, was one of the
he cost of production.

CZAR A "MOVIE" ACTOR

ssian Government and even the
l in securing historical accuracy
," a presentation of Napoleon's
ɔm Moscow. And "Waterloo"
ıced in Northamptonshire, at a
ırly $25,000, during four twelve-
;' work, with almost every old
niform and piece of artillery of
that England afforded.
Boer War" was filmed on the
fornian ranch acquired by one
just for its productions — with
sm that scores of veterans are
ıve pointed out spots they re-
particularly when the pictures
n in London!
'e literature and the drama been
Forbes-Robertson's "Ham-
ɜen most elaborately filmed, with
re Castle built by the water's
Lulworth Cove, Dorset, Eng.;
ɜrables," with a star cast drawn
the foremost theatres of Paris,
'e-reel film (12,000 feet) which
een months to prepare, requires
ırs to show, and cost about
he "Life of Christ" is in thirty-
hs, from the Nativity to the
ı, and is reported to have
ɔ,000 for one renter; "Dante's
though advertised on Broadway
on't you want to take a trip
lines) was really a remarkable
nt of the Italian makers; an-
/ artistic production of one of
t Italian studios is a version of
Crusaders," requiring 600 men
horses; even such supposedly
ɜrature as "Pelléas and Méli-
ɜ gone before the motion camera.

SINKING A REAL SHIP

respects the most extraordinary
ɜe book productions is the film
ıann's "Atlantis." The armless
man and the actress (who had given the author the first idea of the story on board the vessel which brought him to this country) were found after a long search; an ocean liner, with captain, officers, and crew, was chartered and a company of five hundred actors embarked; the *Roland*, which sinks in the story, was partly constructed on pontoons and sunk by flooding these supports — the scenes of this ocean tragedy being enacted to the utmost detail; and the entire film cost something like $100,000.

Indeed, the new movement in producing successful novels is assuming large proportions, and promises to add materially to the fiction writers' income — for a court decision has just held that the motion picture rights are protected by the book copyright. One company, just starting, is specializing in this line, and offering in many cases $1,000 advance and a straight 10 per cent. royalty on the gross receipts from the film. This is quite a departure, for the authors of moving pictures have generally been paid a lump sum for their work and, though the rate of remuneration has gone steadily up, they have by no means shared in the exceptional successes.

SENSATIONAL ART

The Continent may beat us in the art of its films, but when it comes to realistic sensationalism, Great Britain and the United States lead the world. In bringing out "Ramona," sixty-five actors were sent to the Pacific Coast for five months to get the atmosphere; to show the sacking of the settlement by the Indians, a small village was purchased and actually fired by the savages before the camera. Again a fire scene was wanted; while the possibilities were being debated, a fire broke out in a big store: the producers hurriedly telephoned the authorities, actors were rushed to the spot, and the hero rescued the fainting lady and bore her down the ladder with a background of real conflagration and real firemen that could never be impugned. Miss Marie Pickering, of an English company, in "Through the Clouds," had to leap from an aeroplane, catch the trailing rope of a balloon, and

rescue the helpless victim of the villain from this runaway air-craft — which she did 600 feet above ground; and another actor, as a cowboy on his horse, was slung beneath a balloon and sailed over the city of Berlin. In another play where the "vilyun" in one locomotive is chased by the hero in another, there was a hair-raising race which culminated in the pursuing engine smashing into the one it pursued — but in this the actual collision was a separate run, with dummies, pieced on to the first film.

ACCIDENTS THAT BEFALL THE ACTORS

Naturally there have been casualties: Annette Kellermann was slightly hurt and Herbert Brenon very badly cut in February by the breaking of a glass tank full of water wherein they were enacting "Neptune's Daughter"; one actor was killed in a railroad thriller; another was drowned in a water scene; during the Boer War reproduction one incautious gentleman dropped a lighted match into a glass vessel containing gunpowder — and hasn't eliminated all the particles of glass from his system yet; and besides dozens of cases similar to these, despatches from Africa told recently of the death of a camera man who was filming the charge of a wounded lioness.

These pictures of travel, sport, and adventure in strange lands have been a notable achievement of the "cinema." The "Life in the Jungle" series was a dramatic performance, a regular menagerie of twenty-one lions and pretty much everything else from elephants to monkeys being taken to Florida, with Negroes for Africans, a stock company of thirty actors, animal trainers, and so on. (The heroine had a narrow escape in her "leopard act," being sprung upon so realistically that she was badly clawed.) But such intimate views of a world not one man out of a thousand can ever see as the Rainey views of Africa (on which Mr. Rainey made a small fortune), the Scott and Shackleton sets of the South Pole expeditions, the Duke of the Abruzzi's superb views of the high Himalayas, the set of the unexplored cannibal region of central New Guinea, Buffalo Jones's circus-like ropings of lions and rhinos in South Africa, and the splendid views of swimming polar bears and other Arctic scenes just brought back by the Kleinschmidt expedition, as well as the former Whitney ones — of the absorbing interest and value of these there can be no question. A motion picture outfit has become a necessary part of the explorer's equipment, and the newspapers only recently chronicled the fact that Prince Henry of Prussia had been learning to use a "movie" camera in preparation for the trip of exploration and diplomacy in South America on which he sailed in March.

THE NEWS IN MOTION PICTURES

A similar and even more important field has become the big news events. Mr. Roosevelt, who is news incarnate, was recorded in a myriad manifestations on his trip to Rio, from refereeing a boxing match and settling the question as to the propriety of the tango, to being received in state at the palace in Bahia.

To come to lesser things, the Durbar in India and the coronation of King George were filmed so that the spectator got a much better idea of these gorgeous ceremonies than if he had been on the ground. Pictures of the latter event were shown in Paris that same night. But even this speed record was far eclipsed on the occasion of the investiture of the Prince of Wales at Carnarvon. The ceremony was late in the day so that the last films were not exposed till four in the afternoon: they were rushed on board a special train, developed and prepared in an improvised studio in a goods-car while the train was speeding east; and were actually shown in a London theatre, 200 miles from Carnarvon, that night at quarter past ten. The Messina earthquake and the Balkan War were also chronicled most realistically, several venturesome camera men being overcome by the lava streams on the former occasion; and when a new figure came into the limelight of the Mexican anarchy, an enterprising American company outdid all its rivals by going into partnership with the warrior — so that it is now able to offer triumphantly "General Villa's own Mutual Movies of the Mexican

olution." (A realization of the vaude-
joke that "the last Mexican battle will
: to be fought over because the moving-
ure man forgot to put in any film.")

THE "ANIMATED NEWSPAPER"

natural outgrowth of these news
ures has been the "animated news-
:r," *The Gaumont Graphic, Pathé's*
kly, and a number of others. If
e is a shipwreck off the coast, a bad
oad accident, any picturesque dis-
r, a camera reporter is rushed to the
; anything worth chronicling in sport,
:ty, politics, fashion — in short, any
; that can be so treated is filmed,
cted, and made up at the office, and
out to the theatres as a regular news
ice. One of these "newspapers" is
d twice a week and each issue is
ably seen by several million people.
e business aspect of the motion pic-
has changed considerably with the
len increase in cost of studios and
ssories, the higher prices paid authors
actors, the exacting public demand for
lute realism at any price. A few
s ago, the "plant" represented only a
few thousand dollars; authors who
$35 for a scenario or play were the
t sellers" of the profession; and regular
rs would starve rather than make a
le of dollars a day before the camera.
a producer would be hopelessly handi-
ed without a studio costing, when
pletely fitted up, ten to twenty thou-
dollars (the Edison building alone
o feet long, has a tank for aquatics
ing 130,000 gallons of water, and cost
,000 — a wonderful contrast to the
e little "Black Maria" in which their
films were made), prices of $200 for
s are not rare any more — and the
element of 10 per cent. royalty,
cially on novels, is coming in; and
John Bunny, the star actor of the Vita-
h, gets a salary of $15,000 a year for
motion picture work, with enough
left to himself to draw big sums from
vaudeville houses.

it leaving out the extravagant "fea-
' productions, with the cost of raw
at 2¾ cents a foot (instead of 3½ as
erly), it is perhaps a fair approxima-
tion to say that the average initial cost is paid by a sale of ten copies of a film (the price here being 10 cents a foot) and that therefore there is a profit of about 4 cents a foot — $40 on a standard reel — to the producer. And since circulations run from 50 to 100 copies (*Pathé's Weekly* has a regular "release" of 120), the possibilities of profit are obvious — though the statement by a well-posted writer that "the American producer cannot possibly court failure" is perhaps not safe to place before a novice thinking of entering the business — for the small independent manufacturer, not belonging to the powerful organizations, will probably be lucky to sell from twelve to twenty prints of a fairly good subject. And when one considers that there are more than 5,000 plays a year being turned out in the United States, exclusive of the big spectacular "features," the similarity to a stampede to new gold fields becomes evident.

TWO GROUPS OF WHOLESALERS

The manufacturers of machines and film are also, of course, reaping a fat harvest. The biggest end is the making of raw film, which is controlled over the whole world by half a dozen firms, that turn out more than a million feet of film a day; 95 per cent. of the world's supply is said to come from the Eastman factories.

When a picture play is made, it passes through a variety of middlemen before it is finally shown to the public. In England, the system is to submit the new film to a "renter," who buys what he believes in and rents it to the theatres. Here, on the contrary, the film "exchanges" dominate the situation — two great groups of wholesalers, the General Film Company, or "Trust," with about fifty branches in the United States and Canada, and the two organizations of "independents" — the Mutual and Universal groups, comprising nearly two hundred corporations all over the country, which are about as much of a "trust" as the General. Each combination issues a given number of films a week, which are distributed to the theatre manager — who has only a negative voice in what he shall put before

his patrons, frequently not even knowing beforehand what he is to receive. Right here is, naturally, one cause of our backwardness in artistic productions.

The latter situation is being relieved by the "features" to some extent, more than one hundred companies now acting independently of trade alliances; and the new "Exhibitors' League" might have a profound influence if they only would.

PLENTY OF COMPETITION

So any reader who sets out to scoop up for himself a few bucketfuls of this golden-flowing Pactolus need not fear but that he will have plenty of competition of the liveliest sort. Moreover, the immediate future promises changes whose effect cannot be estimated: the Edison patents have been upset; the Eastman film patent has been upset in favor of the original Goodwin invention; there is a Government suit for the dissolution of the Motion Picture Patents Company; the "trust" contracts expire this summer (and what will be the realignment no one can foresee); and the tariff has been removed permitting the free entry of foreign films. These unsettling elements, with the growth of the "features" and with new concerns springing up every few minutes, ought to provide plenty of excitement for motion picture men in the next year or so.

Remains the exhibitor, and remarkable as are the get-rich-quick annals of the other lines, some of the money successes here are even more striking.

A MILLIONAIRE POLICEMAN

For example, there was, a few years ago, a policeman in Albany who invested his hard-earned savings so successfully that he found himself a few thousand dollars ahead. He started a moving picture theatre on a small scale — and to-day he is a rich man even for twentieth century America, buying out shares of theatre circuits for millions of dollars.

Another man now a millionaire several times over was a cloth-sponger in a tailor's shop only a few years ago.

A third, who has acquired forty theatres in five years, was a fur manufacturer in a small way; and his former partner heads a concern capitalized at millions and controlling a great chain of 200 theatres.

Mr. Charles Kleine, who was one of the pioneers in the "touring film" (large "feature" plays run exactly on theatrical lines, with advance agents going from town to town, but with only three men to carry around instead of a big expensive company), bought the American rights of "Quo Vadis" from the Roman producers, the Cines Company; it has been an amazing success, and bids fair to return a net profit of half a million dollars to Mr. Kleine in a year's run.

Mr. Tom Moore, of Washington, D. C., started in the early days of motion pictures by purchasing the film of "The Great Train Robbery" for $21 — about all he had. He presently traded the film for a horse and buggy and a cow, sold the animals, and found himself with a capital of $85, on which he leased a theatre: he "bally-hooed" in front, his wife sold tickets, and when the show started he ran the machine — singing songs to Mrs. Moore's piano accompaniment between reels. This Pooh-Bah gentleman has a circuit of fifteen theatres, which he is replacing with much more ambitious ones, the first of the new type costing $225,000.

"MUTE PROFANITY"

Between the severe legal restrictions of a few years ago and the often unintelligent domination of the exchanges, the exhibitor did not exactly have a bed of roses, despite the increasing flood of admission dimes and quarters. Toward the end of 1909 especially, the demand was so much greater than the supply that new films were ground out day and night, and the theatre took what it could get, contending with poor quality, "repeaters," bad editorial work and acting, exasperating service, and tremendous insurance rates. In some states laws were passed requiring the projector to be in an asbestos room, the asbestos being obtainable from only one manufacturer; the doctors said the "flicker" hurt the public's eyes; the Sabbatarians got laws through against Sunday shows; the "unco' guid" actually protested against the "mute profanity" which they declared they detected in the

ements of the actors' lips; licenses raised in every direction; and the tre manager was called upon to retruct his building according to modern s of scientific ventilation. All in all, igh some of the early exhibitors have h to answer for, I don't know but they paid for their success.

he natural result of this chaos was application of the modern panacea rganization by the formation, first in of the National, and then in 1911 of International, League of Exhibitors. hese gentlemen would try to forget bogey of hostile legislation and the equent lobbying, they might do much ring order into the business.

ENSORING A NATION'S AMUSEMENT

ne of the great influences in improving standard of motion picture plays has an outside one — the supervision he National Board of Censorship, blished in 1909 by the People's Inite to attack some of the crying evils he New York shows. This board passes on about ninety-six of every lred films publicly exhibited in rica, supervising the daily amuset of about ten million people. In a le year's work it kept out of the tres of the United States more than 4 on feet of film, about 1 per cent. he amount inspected; and the more eeing makers are coming to realize the half a million dollars for which film could have been sold, or the -thousand it actually cost to produce, r more profitable in the long run if wn away than if used.

ie outlook for the future in this zing Jack's beanstalk of a business ggested by a few of the newest inven- and novel applications:

ord comes that in the general elec- in France forty candidates used on pictures in their campaign. Pos- many political campaign speeches soon be made by "talking movies."

ir Government is using motion pic- in recruiting work; and some big ufacturers employ them to teach ency, to demonstrate salesmanship iods, and for general education of their employees; in the Nevada Hospital for Mental Diseases they have been found of great value in amusing the patients; a "Life Target" now has moving pictures of birds and animals for gunners to practise on; in England humorous advertisements are sometimes run in the theatres, and a new American company devotes itself exclusively to advertising work — one unique result being a department store's screaming announcement of "Motion Pictures of Beautiful Lingerie;" one firm supplies what it calls a moving picture illustrated song service, and an automatic piano company has just put out a "photo-player" for use with motion pictures, containing a whole automatic orchestra of "organ, piano, mandolin, xylophone, violin, drum, cymbal, triangle, castanets, tom-tom, crash-cymbal, fire-gong, steamboat and locomotive whistles, cow-bells, thunder effect, wind siren, bird call, baby cry, telephone and door bell, horse trot, and automobile horn;" and for two years Paris has had a method of showing by full daylight instead of in a darkened hall.

Of course, the logical ultimate aim is the "talking-color-movie." There are already fair color effects: kinemacolor and biocolor, using two screens of red and green; a new method employing the three primary colors; the Continental colored prints stencilled by hand; and the tinted pictures now very common in all work. Edison announced last summer that after five years' study and experimenting, one of his staff had perfected a color process reproducing hues exactly and working as fast as sixteen pictures a second.

And the problem of synchronizing the vocal record with the picture projector has been worked out.

But the voice accompaniment is still too nasal, and there is much to be done before the "talking movie" is adopted for more than, say, political speeches or similar work. Indeed, many leading workers believe it will never be used except to dispense with the titles of pictures — the point being that the photo-play is essentially pantomime, and spoken text is therefore superfluous. Doubtless perfection of the talking machine would change this theory radically.

DOCTOR SUCCEEDED NEVERTHELESS

THE WORK OF DR. O. T. LOGAN, A MEDICAL MISSIONARY OF CHANG-TE, CHINA, WHO HEALS THOUSANDS OF NATIVES EVERY YEAR IN A HOSPITAL THAT IS SEVEN DAYS' JOURNEY FROM THE NEAREST CONSULTING PHYSICIAN — HIS ADVENTUROUS CAREER IN WINNING THE GOOD WILL OF THE CHINESE

BY

W. W. PETER

TO THE west of the western edge of a great lake in Hunan Province, China, is Chang-te, a city whose inhabitants have never been numbered. There may be 200,000 people in it as some estimate. Perhaps there are 50,000 or 75,000 less. No one knows. Around this city in the valley of the Yuan River is a huge wall of mud, brick, and stone, higher by ten feet than most of the houses within. This wall was built to protect the people from the spring and summer floods. In low water the river flows past the city. In flood water it flows past and around the city. At such times the city becomes an island, and to a man high up in an aeroplane would resemble nothing so much as a huge washtub full of living creatures resting in a body of muddy water.

To this city in 1899 came Doctor Succeeded Nevertheless, whose other name is O. T. Logan. Originally from Illinois, he came to China to live and work as a medical missionary.

Less than two hundred years ago, when "foreign devils" first came into China, the Chinese tried to restrict contamination to the port cities. Foreigners were prevented from entering the interior, which for years remained a locked up, mysterious country. But gradually the barriers were broken down by commerce, Christianity, and cannon, the three strong arms of Western civilization. Through the central government on the one hand, and each of the eighteen provinces on the other, the entire country was opened to foreigners. But the province of Hunan was the last one to open its doors.

About this time, 1897, Dr. O. T. Logan and his wife arrived at I-chang, Hupeh, where they spent a year studying the language and waiting for a favorable opportunity to go south into Hunan. In those days there were no steamers running so far inland and when they decided to venture into Hunan they had to travel by means of a slow-going houseboat that was propelled by long bamboo poles, heavy sweeps, and wind.

When the party got as far as Shi-Shau, on the border between Hupeh and Hunan, they felt the temper of the people. For centuries the Hunanese had been spared what they came to consider the blight of intercourse with foreigners and they gave way grudgingly to the trend of the times. Although the doors of the province were officially declared open, practically they were still shut in certain cities and only a crack open in others.

The Chinese in this houseboat party advocated turning back. It was plain that foreigners were not wanted. At this rather critical stage in their journey, the doctor succeeded in giving relief to a woman who had been brought to him. While eating her rice she had swallowed a needle. First husband, then relatives, then Chinese doctors, had reached down for the needle and failed. In desperation they took her to the river bank to the boat on which the "foreign devil" doctor had just come to town. Perhaps he could bring up the needle. Word of what had happened to the woman spread through the town and a great crowd of curious people gathered on the shore to see what would happen. In plain sight of all, by the use of his fingers and a long for-

the doctor succeeded in producing ıeedle. Their own doctors had plainly ı. And the foreign doctor had just lainly succeeded. The people were ıed. And the party of foreigners de- l that after all they would not turn back.

ON VIEW AS "FOREIGN DEVILS"

hen they arrived at Chang-te, their nation, they found the people more ıus than hostile. As soon as their was tied up next to the shore, lreds of people came to get their glimpse of such strange-looking an beings. The doctor went ashore was followed by people wherever he . During his absence, the crowd at boat became so great that the doors pushed in and the roof was torn away ıe more ill-mannered ones who insisted ın immediate personal inspection of newcomers, their clothes, boxes, etc. curiosity of the crowd was satisfied in when the only woman in the party ɔed outside so that all could see what reign woman looked like. The less l Chinese women felt of her shoes and es, looked her up and down, front and . It must have been an experience. ıey rented a Chinese house in which ve and work. At first their living ıs, the schoolroom, the dispensary and ital, and the chapel were all in one ing. And this a building whose front opened into the street and whose brick held neighbors immediately on the side. In the back was a small yard ıich the annual flood-water came dan- ısly near. Once the doctor rowed to ghboring house, also outside the city, ound that in the first floor was six feet ater. In his own house the doctor annoyed by rats. They were both ɜrous and daring. He did not mind ch so long as they confined themselves nning around the rooms and over the at night. But it was the limit of his nce when, on one occasion while trying erate on a man who had tried to com- uicide by cutting his throat, he found a venturesome old rat was walking ıd on the table he had reserved for rgical instruments.

spite crowded quarters and only the simplest of equipments this doctor succeeded nevertheless. A man from another province was brought in because he was blind. The lenses of both eyes were opaque and had to be removed. Seeing, he returned to his home but came back again after five months, bringing with him five friends blind, or nearly so, from different sorts of eye trouble. They had traveled a hundred miles to the hospital, and, headed by the man whose sight had been restored, they walked into the doctor's room, lock-step fashion, every man behind having his hand on the shoulder of the man next in front of him.

He operated on the eyes of an old woman beggar. The day she left the hospital she tried to express her appreciation by the promise to bring all the money she could beg into the hospitals so that other poor blind people might be given back their sight. Poor patients out of gratitude often brought a chicken as a present. And in many cases a single chicken represents several days' wages for hard work.

TIGER'S TEETH FOR MEDICINE

The success of medical missions in China is due on the one hand to the zeal and devotion of the men, and on the other to the great contrast which exists between the Western and the Chinese way of caring for the sick. In China, such sciences as anatomy, physiology, pathology, and bacteriology have never been developed, not because the Chinese are Christian Scientists but largely because they have never sanctioned dissection of the human body. So long as the human body harbored life, it may have been thought ever so little of, but once that body became a cadaver, it became something sacred which had to be left alone and buried with its forebears whenever possible. In consequence, after several thousand years the Chinese system of medicine is still a matter of giving tiger's teeth or something often equally ludicrous, and surgery a matter of letting out the little devils of pain by puncturing the sick patient with long, dirty needles, bleeding, or some such method. From now on, however, this will become decreasingly true. Medical schools are being established along Western lines, dissection

has been legalized in Hupeh by the Government at Peking, and the influence of the Government is leaning very largely toward the new order of things.

In the very beginning of his work, Doctor Succeeded Nevertheless faced a unique difficulty. He wanted to build a hospital. But none of the Chinese builders in the city knew what a foreign hospital building should look like. Could they build him a house? They did not know what a foreign-built house ought to look like, either. There were no foreign buildings in the entire province. But there was one builder who had traveled more than his neighbors, and he remembered having seen a foreigner's house once, and that twelve years previously. Logs from up-country were hauled from the river into the compound, sawed up into lumber by the laborious process of two men and a hand rip-saw, and dressed for use. Everything had to be explained in detail again and again. This took months, but the hospital was finally completed and ready for use in 1902.

DIRECTING AN OPERATION ON ONE'S SELF

Chang-te is in about the same latitude as New Orleans. In summer it is very hot. One summer the doctor became sick and decided that he would have to leave and secure treatment by some other doctor. The nearest one lived four hundred miles away and the going was slow. After four days' traveling on a small boat, the pain became so severe that they had to tie up at a small village on the edge of Tung-ting Lake. In telling the story the doctor says that all he can remember about this place was that next to them was a boatload of squealing pigs. Here they waited, but the pain increased. The doctor decided that an operation was necessary, so he instructed another missionary how to give chloroform and his wife how to perform the operation. Unfortunately, the anesthetist took sick and spilled most of the chloroform so that there was not enough left to put the doctor fully to sleep. The doctor's wife operated anyhow. But the doctor jumped and kicked around so much that he spoiled the operation. Fortunately, the appendiceal abscess, which was the cause of all his trouble, broke into the bowel that very night.

It was at this little village, also, that the wife had to open twenty-one boils which had broken out on the body of their only child. After seven more days, this rather broken down party reached Hankow and a medical missionary there. It was feared that Dr. Logan would not recover. But he did, and when he was well enough to travel they sent him to his home in Illinois. Within a year and a half he was back in Chang-te and on the job as before.

Late in the summer of 1912, Dr. Logan was returning to Chang-te from the annual mission meeting, when the captain of the boat came into the cabin in great alarm with the news that cholera had broken out on the ship and that the first man to be stricken was his first officer. It was a Japanese river steamer, *Siang Kiang Maru*, with three hundred passengers who were already in a state of panic. They were still eight hours from their destination, with no intervening cities at which they might stop. Cholera spreads very rapidly and, once taken with it, the stricken ones die within a few hours.

QUICK WORK IN A CHOLERA SCARE

One glance at the sick man confirmed the captain's diagnosis. The doctor had not come prepared to do the unexpected. But he had a pocket case. From another passenger he borrowed a fountain-pen filler. On board the ship they discovered some rubber tubing and a funnel. From the dining saloon table they obtained salt.

The cholera patient was isolated. Every precaution was taken to prevent others from becoming infected. With the table salt and boiled water a "normal salt solution" was made. The fountain-pen filler was inserted between two ends of rubber tubing to detect air bubbles. Connection was made between the funnel and a hypodermic needle. The saline injection outfit was complete.

By this time the first officer's face was blanched. His fingertips had that "washerwoman's hands" appearance which is characteristic of the last stages of the disease. His heart was fluttering and it was plain that death was not far off.

Carefully but speedily the vein at the elbow was laid bare with a sterilized pock-

. After making sure that there o air bubbles anywhere, the hypo- needle was driven into the exposed ıd the solution allowed to flow in :le above normal body temperature. pints of the solution flowed into the vein and thus into the general cir- ı. The officer's heart, from rapid, :s flutterings, began to beat more ınd steadily. His blanched features ı a more lifelike appearance. By a pulsing thread of flowing blood ıe felt at the wrist. The fingertips ıt. The face showed returning color. re the operation the man was un- us. After the injection he showed f life by moaning and trying to The first thing he said was, "Give rink." On opening his eyes he rec- . the captain standing at his side. wo weeks in the Chang-te hospital :er was taken back to his ship, weak of danger.

:ely had the doctor unpacked his ıfter his return to Chang-te when egan to come in alarming reports ra outbreaks in all parts of the city. year there had been sporadic cases :ra, but no epidemic had visited the twelve years. At that time there :n a loss of life which totaled many ıds. The doctor and his wife had ırough that epidemic and now they hat to do.

twenty-five men and women who him in the hospital were called to- It was a rather silent meeting. ɔoked into their faithful but fright- ces the doctor saw those who were / support of large families. He did d to tell them what they were fa- They knew. So he made it plain to ıat not a single person was bound . Not one left. And they went : greatest fight of their lives.

in a week cholera was raging in the ınd it was very plainly to be seen would be a physical impossibility to all the people once they became Their hope lay in keeping the people atching" cholera. It was preven- her than cure.

was hastily prepared for ten thou- ndbills. Before the ink was fairly dry these were being distributed everywhere in the city—on the streets, in the tea shops, and in the public market places. Bills were posted at all the city gates, and on those bulletin boards which so often serve the Chinese as newspapers.

A CHINESE "SANDWICH MAN"

A Chinese version of an American "sandwich man" was rigged up, to the astonishment of the natives. With his loud gong he attracted the attention of many to his signboard. When a crowd gathered he would shout out his warning at the top of his voice for those who were unable to read. At night an illuminated sign was carried through the streets. Two former patients were instructed what to say and then sent out to warn the people. The newspapers were used, also. Within a few days, by the use of all these methods, the news of how to prevent cholera spread pretty generally throughout the city.

And this warning was most simple. Cholera gains entrance into the human body through the digestive tract. Eat and drink nothing contaminated by cholera organisms, and you are free from the danger of cholera. Of course, the people knew nothing about cholera "bugs," but they did know that there was such a thing as cholera. They could understand these rules:

Boil Everything You Eat or You Will Eat Bitterness

Do not eat raw vegetables.
Do not eat anything uncooked.
Do not drink unboiled water.
Before eating, wash your hands in hot water.
No one gets cholera who does not eat unclean food.

Remove Filth

Cholera spreads by means of filth and pollution.
Remove all which has been contaminated by one with cholera.

Gospel Hall Hospital

All who are taken sick with cholera should be carried to the Gospel Hall Hospital for treatment.
During this epidemic only cholera patients will be received.

At the very height of the epidemic occurred Chinese Independence Day. The people were not in a mood for an extensive celebration. But a night parade was

formed to march from one end of the city to the other. In this parade the Chinese authorities gave the Gospel Hall "sandwich man" a prominent place, and handbills were distributed freely.

Thousands obeyed the rules of prevention and lived. Hundreds scoffed at them and died. For the question as to what course to take was left entirely to the judgment of the individual citizen himself. There was no municipal health department to say to the citizen, "This you must do, this you must not do, in order to protect yourself and the community."

At the main hospital entrance was this sign, "Only cholera patients admitted"; and they came, rather they were brought, by the score. At times those who brought them blocked up the street with sedan chairs and improvised stretchers of bamboo poles. They were treated as they came, rich and poor alike. In the democracy of suffering the rich man lay helpless on a table adjoining that of a coolie in rags. When all the available space in the hospital was filled up, the out-patient dispensary room had to be turned into an operating room. Seven operating tables were constructed of rough boards and arranged conveniently in the large room. For every table there was a saline solution stand with holders for the flasks. After being operated upon, only the worst cases could be allowed to remain, and all the others had to be sent back the way they came. In this way the great majority were given the saline treatment, were sent back within a few hours, and their places were given to newcomers.

SIXTY-ONE OPERATIONS A DAY

The very success of the treatments brought new difficulties. What 125-bed hospital in America could accommodate fifty intravenous injections of several pints each in one day for many days in succession without the least warning? And what if this American hospital could not replenish the equipment short of three weeks? And yet, during this epidemic in Chang-te, as many as sixty-one patients were operated upon in one day. Some days the staff worked twenty hours out of the twenty-four. There were no other doctors or nurses within hundreds of miles, and no connecting railroad if there had been.

When the stock of rubber tubing ran short and spoiled from repeated sterilization, the stomach pumps in the hospital were cut up, and all foreigners in the city who had rubber tubing of any sort were asked to contribute. In the hospital there were only two nozzles such as are regularly used for intravenous work. So small glass medicine droppers had to be used instead. Everybody contributed ideas or material.

One of the most serious difficulties was met successfully by one of the menial hospital coolies. Since every patient had to have from one pint to several quarts of distilled water with salt in it, the water could not be distilled fast enough. For two days the staff struggled along with makeshifts while thinking up a plan to build a still for little money without the loss of time. This coolie solved the problem. In one day and at a cost of less than two dollars he built a still which later produced twenty gallons of distilled water every twenty-four hours.

A COOLIE'S WATER STILL

The still was simplicity itself. For cooking food, the Chinese use large, flat, saucerlike pans made of iron. With one of these above and another below, the coolie made a drum of galvanized iron with a hole in the side for a trough. Into the lower pan hot water for boiling was poured. Underneath, a hot fire sent up a constant steam vapor. The upper kettle was kept cool by frequent changings of cold water. The vapor from the lower kettle, condensed on the lower surface of the cool upper kettle, dripped off into the trough, and filled bottle after bottle with distilled water.

While Doctor Succeeded Nevertheless and his staff were working out the salvation of Chang-te, a group of foreign doctors and a still larger Chinese staff were fighting an epidemic of cholera in Shanghai. When the smoke of battle cleared away, or rather when the doctors hung up their operating gowns after the scourge disappeared, it was found that two new world's records had been established in the combating of cholera. The world's record went to the doctors at Shanghai. The

t record went to Dr. Logan and thousand miles up-river.

'ORLD'S MEDICAL RECORD

Chang-te epidemic, 603 patients ;iven the "intravenous-injection-olution" treatment. The amount ı carried out of the hospital by patients was a ton and a half. this is a world's record, in that ıre were so many persons treated ısly in so short a time and under ult circumstances. How many or thousands were saved by he campaign of prevention can-rse, be estimated. Not a member ıital staff became ill.

霍亂

夫霍亂之原因程所致此症多見於中華蓋華人於衛生一道多不講究昧於防其病原當盛夏之時人烟稠密閉街窄巷所積之骯髒等物未經掃除則其內含多種其種後或入於水或由蒼蠅盤踞於穢物之上復飛集於人所食之物程即由蠅以佈于其面若水未沸物未煮熟而飲食之程遂於胃腸發生其力更生有最毒之質其霍亂症之狀即上吐下瀉手足冷烏皮起縐紋肌筋被惹令其硬抽因此而死者不知凡幾倘人體強健其血能生敵此症之汁則病能自痼今將防染之數法詳列於下

一凡食物菜蔬皆宜熟煮以杜絕其種更宜防蒼蠅來往

一所飲之水必沸至二十分鐘之久方可合用因此時熱度不獨霍死而種種亦死矣

一每逢夏季凡水菓及生冷並腐臭等物必須禁食所食者必煮沸始得無虞

"CHOLERA!"

:RYTHING YOU EAT OR YOU WILL EAT ' AND OTHER SANITARY DIRECTIONS TO OF CHANG-TE, CHINA. A POSTER THAT ;ANDS OF LIVES

an's friends stick. It has been since he made a few friends at ın the border-line between Hupeh ın. But there has not been a no one came the long distance Shau to Chang-te to the hos-late years the Shi-Shau people have organized parties and brought their sick to the Chang-te hospital in boatloads. And, no matter how crowded the hospital may be, room is always made somehow for these old friends whose encouragement years ago meant so much to him.

There were three stages in the change of attitude of the people. Indifference, polite words which cost the Chinese nothing but meant much to the doctor, and finally money. And the giving of money is final proof of what a Chinese thinks. Last year their voluntary gifts amounted to $300 gold. And it must be remembered that money is ten times as valuable in China as it is in the United States.

A STRANGE VISITOR

One day a visitor from a neighboring province came into the hospital guest room and asked to see the doctor. He was met by one of the Chinese assistants, who asked, "Are you sick?"

"No, I am not sick," the man replied, "and I have never been here before, nor has any member of my family. But I came to see the foreign doctor."

Thinking that he might be but one of the many who were curious to see the foreigners, the assistant said, "The doctor is very busy."

But the man would not be put off, so the doctor was called. After a few minutes of conversation over tea, the visitor came to the point of his visit by saying, "I have here a very insignificant gift which I would be pleased to have you accept." He deposited a bundle on the table and bowed himself out of the room. After the guest had gone, the doctor opened the bundle and was astonished to find that it contained native coins equivalent to $40, gold, which is a very large gift for a Chinese to make to a stranger about whom he has only heard.

During the Revolution of 1911 conditions in the Yangtse Valley were somewhat unsettled. Various foreign governmental officials feared that there might develop an anti-foreign feeling and consequently as a precaution ordered all foreigners from the interior to the port cities. When the foreigners in Chang-te obeyed this request, the Chinese made no effort to delay their

leaving. But they came to urge Dr. Logan to stay on. The officials swore that no harm should come to him. They said they would keep order. And just to let it be known that their intentions were of the best, several bad characters in Chang-te were quietly dealt with.

HEALING THOUSANDS A YEAR

Doctor Succeeded has a man's job. Since medical work was established in 1899 there have been 96,097 registrations of patients. Fifteen years ago patients came only by the dozen. Five years ago they came by the hundreds. But not until the last few years have they been coming in by the thousands. Last year more than 17,000 patients passed through the dispensary and hospital for treatment, and 1,400 operations were performed. And this remarkable piece of work was done in a very modest plant and with only the most necessary hospital equipment for about $3,000. Of this amount, $700 comes from America and $2,300 is given by the patients and subscribing Chinese. An average of fifty-two new patients are received into the hospital every day in the year.

With him the doctor has a foreign trained nurse and two Chinese doctors who share the heaviest responsibilities. The two Chinese doctors were trained for a number of years in the Chang-te hospital before and after completing the five-year course in the Hankow Union Medical School. They are especially skilful in operations on the eye, of which they do a great number. A recent graduate of one of the medical schools of Chicago came out in 1913 and is now studying the difficult language preparatory to active medical work with Dr. Logan. Including dispensary assistants, nurses, and coolies, the total staff numbers twenty-five. With treating, managing, and financing, the doctor has his hands full.

And yet he does a few other things. He spent a month and traveled more than 1,500 miles to attend the last triennial meeting of the China Medical Missionary Association in Peking. Years ago the microscopes of many doctors showed an unknown egg. They got to calling this the "x" egg because *no one knew* what sort of an intestinal worm it belonged to. After three years of investigation Dr. Logan succeeded in offering an explanation which is now universally conceded — that the "x" egg was the unfertilized egg of the common roundworm. It is probable that he reported the first case of hookworm disease in the Yangtse Valley. Specimens sent to the United States Medical Museum were pronounced by Dr. Stiles to be the American hookworm. His work in parasitology led him into membership in the American Society of Tropical Medicine. He has written for the medical journals of China, England, and America. And all these outside things have to be worked into a schedule which to an ordinary man would be quite full enough.

SEVEN DAYS FROM A COLLEAGUE

Late at night one can often find him alone at work over his microscope in the laboratory or in his crowded study with textbooks and medical journals scattered about. Whether it be getting ready for some difficult operation or some matter for research, he has to rely largely upon himself. His nearest colleague is seven days' journey away. They seldom compete. Nor can they consult over the telephone. Men in his position acquire confidence because they have to fight single-handed.

Hardships? Once he was sent home to die. Ingenuity? Not a month passes but that he has to devise some makeshift where his fellow practitioners on the other side of the earth near the source of supplies have but to telephone an order. Luxury? He knows it in the same way as most medical missionaries whom I have met — by the absence of things they can get along without. Efficiency? Recall the cholera epidemic story.

Whatever happens to come up in the work each day is handled without fuss and feathers. He believes that the job of being an active medical missionary in China at the present time is the very biggest job in all the world that any man could offer him (and he has been offered two professorships). And he says that he is only doing what every other average man of the five hundred members of the China Medical Missionary Association is doing.

THE MARCH OF THE CITIES

"SAFETY FIRST" IN SYRACUSE

NE pleasant morning last winter a stranger in Syracuse, N. Y., left his hotel for a stroll about the city. He stepped off the curb to ; usual, diagonally across the street. diately things began to happen: A s-faced little urchin, rushing up, acard into his hands; two Boy Scouts d their staves directly in his path; huge voice bellowed at him through iphone. The stranger hastily backed the curb to collect his startled wits. ' it dawned upon him that this must tangible manifestation of the famous y First" campaign.

Syracuse, as in every other large can city, there has always been a list of serious injuries and fatalities street accidents; and these accidents been complacently considered unible — the natural hazard of city Last fall, however, a particularly nt piece of careless driving by a reckauffeur resulted in the death of an y lady, who was knocked down and as she alighted from a trolley car. indictment and conviction of the followed; but the public conscience een thoroughly aroused, and the city rities resolved to take the strongest to prevent further accidents.

resentatives of the city police department the Chamber of Commerce, and the automobile club constituted them- a committee to undertake the work vention; and, with the ready co- ion of the townspeople, immediately d the campaign.

le publicity was given the movement e newspapers in editorial and news ns. Moving picture houses flashed portraying accidents caused by caress. "Safety First" was stencilled on lks, painted on ornamental lights at eet corners, displayed on cards in the cars and office windows. Fifty nd booklets were printed and distrib- n the churches and schools. Clergymen in their pulpits and teachers from their platforms urged the necessity for caution and clear-headedness. "Safety First" talks were printed on theatre programmes and on restaurant menus. A great rally of citizens was held in the Central High School to ratify the resolutions of the committee.

One particularly busy Saturday the Boy Scouts were detailed to give a practical illustration of the object of the campaign. On this day, from ten in the morning until nightfall, sixty of the scouts patrolled the city. Each boy bore a long staff and a handful of cards on which was printed: "Safety First. Danger! Do Not Cross Here. Go to the Street Intersection. Safety First. Syracuse." Whenever a scout saw a pedestrian crossing the street diagonally, or in the middle of a block, he presented the "jay-walker" with one of the cards. If the person so infringing the traffic regulations paid no heed to the mild hint, the scouts would interpose their staves, while one of the several uniformed "megaphone" men told the transgressor just why it was foolish to violate the principles of the campaign. Needless to say, such publicity was unwelcome and generally effective.

Throughout the campaign the committee emphasized the importance of considering the common rules of safety, pointing out that safety depends more upon the caution of the individual than upon trust in the carefulness of the "other fellow," and that the majority of the street accidents are due as much to recklessness on the part of the pedestrian as to the wanton heedlessness of motormen, chauffeurs, and drivers.

Although the active campaign lasted but a month the signs on the sidewalks and at the street corners have been allowed to remain as a constant reminder of the necessity for caution in moving about a busy city; and though all the results of the campaign cannot yet be estimated, the comparative figures for one month in two successive years show a decrease in accidents of more than 20 per cent. since the agitation of "Safety First."

MAN AND HIS MACHINES

GIGANTIC APPARATUS FOR UNLOADING ORE BOATS

THERE probably are no other ports where the specialization of cargo-handling apparatus has been developed to an efficiency which compares with that of the ore ports of the Great Lakes. It is quite customary to load the largest ore freighters in less than one hour, and the record of one of the great ore docks at Duluth is 6,000 tons in 25 minutes.

The unloading is, of course, a more tedious task, but ore vessels of the size of the *Zenith City*, which is shown in one of the illustrations, and which has a cargo capacity of about 6,000 tons, can be unloaded in a little less than five hours by a battery of four 17-ton unloaders of the type used on the new iron ore docks of the Pennsylvania Railroad at Cleveland, O.

These unloaders, the massive dimensions of which are clearly shown in one of the illustrations, are used for loading into cars for direct shipment, or transferring to a pit at the rear and within easy reach of a re-handling bridge. Some idea of their proportions may be obtained by noting the comparative size of the man whose head protrudes from the round opening above the clam-shell bucket.

These unloaders are massive machines in every way, dwarfing almost to insignificance the big vessels that they operate upon. They consist of a heavy framework mounted on wheels, which travel along the runway rails next to the face of the dock. The main framework spans several tracks on which the cars to be loaded with ore are placed. The upper part of the main frame is provided with rails upon which a trolley travels forward and back. This trolley carries a walking beam, from the outer end of which is suspended a vertical stiff leg with the bucket at its lower end. This bucket leg is mounted on a pivot which is carried on the trolley. The forward end of the walking beam with the bucket leg attached is heavier than the rear portion, so that the bucket will descend by gravity. The walking beam is operated by an electric motor, located at its rear end, and the length of the walking beam and leg is such that the ore can be reached in any part of the boats.

The bucket at the bottom of the leg has a capacity of 17 tons of ore and is directly controlled by an operator who travels with the bucket in a small cab located in the bottom of the leg, directly over the bucket. The leg is suspended from the walking beam on a swivel bearing, which enables it to rotate in a complete circle. From his position in the bucket leg, the operator controls the motions of raising and lowering the bucket, rotating the bucket leg, opening and closing the bucket, and moving the trolley which carries the walking beam forward and back. After the bucket fills itself in the hold and is lifted out of the hatch the trolley is moved back until the bucket is in a position to discharge its contents into a 70-ton ore hopper supported on the main framework of the machine. This hopper discharges the ore into a scale larry which travels on tracks suspended from the under side of the main framework. The larry is controlled by an independent operator who travels with it.

The larry bin has a capacity of 50 tons of ore and is carried on scales which have a recording beam in the operator's cab. After loading the scale larry from the 70-ton bin, the larry operator records the weight of his load, moves the larry over a track upon which ore cars are standing, and discharges into the car any predetermined amount of ore up to the capacity of the larry, the gates in the bottom of the larry bin being arranged to cut off the flow after any desired amount has been discharged.

The speed at which one of these machines works is remarkable. The round trip of the bucket, from the ore hopper to the hold and back again with 17 tons of ore, can be made in from 50 to 60 seconds.

GANTIC CRANES THAT UNLOAD SHIPS
ING A CARGO OF IRON ORE OUT OF A VESSEL OF 6,000 TONS AT DULUTH, MINN.

SOME MACHINERY OF WAR

WIRELESS telegraphy has been developed to a high degree of perfection in military opera- s. The illustration at the top of the page shows part of a field outfit in use rmy manœuvres. This outfit, which is ied in a transport wagon, consists of a -powered generator that is operated by solene motor; collapsible masts that can quickly erected to carry the antennæ; the sending and receiving instruments. a station has a range of many miles, sy to transport, and carries messages pendent of wires that might be cut the enemy.

otwithstanding its lack of this last ed advantage, the regular telegraph inues to be a valuable aid to com- ication in war. Its convenience con- chiefly in the simplicity of the appara- which, excepting the wire, can be car- by hand. It is also less subject to vorable weather conditions and it is from the "interference" that some- s makes wireless useless.

he scenes on the battleship *New York*, are shown on another page, may re- d the reader that war vessels are almost gether great and delicately adjusted es of machinery. This machinery is,

ONE OF THE SCOOPS AT WORK

IT IS OPERATED BY THE MAN WHOSE HEAD AND SHOULDERS SHOW AT THE LEFT OF THE SUSTAINING LEG. IT TAKES UP SEVENTEEN TONS OF IRON ORE AT A TIME AND DELIVERS IT ON THE WHARF

WIRELESS IN THE FIELD

AN INSTRUMENT THAT FREES ARMIES FROM THE DANGER OF INTERRUPTED COMMUNICATIONS

A MILITARY TELEGRAPH STATION

DESPITE THE DEVELOPMENT OF WIRELESS, THE REGULAR TELEGRAPH HAS VALUABLE USES IN WAR

of course, all highly specialized for a particular use. These pictures show the loading of supplies preparatory to the sailing for Vera Cruz. In the second photograph appears a net that is one of the most effective of safe loading devices. Dozens of heavy, highly explosive shells are loaded loosely into these cordage nets and are hoisted aboard. When the pull of their weight is released, the net opens out flat as in the picture.

The extraordinarily light machine gun shown on page 236 has recently been adopted by the United States Army. It is so light (weight 35 pounds) that one man can carry it, yet it is one of the deadliest of modern weapons. It can be assembled complete for action in 10 seconds, and it shoots from 200 to 500 steel bullets a minute. The operation is simple: one man feeds the cartridges into the gun in strips of 25 cartridges apiece and another man aims it. For firing at great distances, a man equipped with field glasses gets

THE COMPLEX MECHANISM OF WAR

A BATTLESHIP ITSELF IS A HIGHLY SPECIALIZED AND DELICATE AGGREGATION OF MACHINERY. SOME OF ITS COMPONENT MECHANICAL PARTS APPEAR IN THESE PHOTOGRAPHS OF THE LOADING OF PROVISIONS (UPPER PICTURE) AND AMMUNITION (LOWER PICTURE) UPON THE "NEW YORK," WHEN IT WAS GETTING READY TO SAIL FROM THE BROOKLYN NAVY YARD FOR VERA CRUZ

the range for the man behind the gun. The photograph shows the gun in practice in the camp of the Ninth Infantry of the United States Army at Laredo, Tex.

Another weapon recently adopted by the Government is illustrated in the upper picture on page 237. This field gun throws a light shell six miles. This shell is only about three inches in diameter and one foot long, and weighs only fifteen pounds, but it contains 300 steel bullets that fly in all directions when the shell bursts.

The Balkan War demonstrated again the usefulness of searchlights for night operations in war on land, not only to light the way for an attack but, for defensive purposes, to blind an attacking force and to discover an enemy. These searchlights, like the one that is illustrated on page 237, are mounted on wagons and so have all the mobility of field artillery.

The American naval demonstration at Vera Cruz, Mexico, confirmed the experience of the Italian Army in Tripolitania, that the aeroplane is an invaluable aid for scout work. Naval aviators flew inland fifteen or twenty miles and reported the presence of small bodies of troops and the exact condition of the railroad tracks and bridges on the line to Mexico City. The bomb-carrying device that is illustrated on page 238 is attached to the frame of a biplane below the extra seat that is beside the pilot, so that the passenger-scout can operate it and so that the bombs and the range finder may hang clear of all obstructions. The bombs are released separately or simultaneously by dropping one side of the supporting canvas bands, and they assume a vertical position at once because the nose is weighted. Their flight downward is directed by the revolving vane.

BUILT TO KILL A REGIMENT IN THREE MINUTES

A MACHINE GUN, RECENTLY ADOPTED BY THE UNITED STATES ARMY, THAT TWO MEN CAN CARRY AND THAT CAN SHOOT 500 BULLETS A MINUTE

menace of the
nes has inspired
inventors to de-
tective machines
nbat them. A
going aeroplane-
er" of German
ction, illustrated
239, is armored
the fire of a
air-craft and is
d with high-
d guns that are
d especially to be
d to the angles
ry for shooting at
overhead.
ite the develop-
f the aeroplane
unfortunate ex-
es of Germany
irigible balloons,
rger air-craft still
or in Continental
and their manu-
for use in war
They have, of
a far greater

A FIELD GUN THAT SHOOTS SIX MILES
ITS SMALL SHELLS WEIGH ONLY FIFTEEN POUNDS APIECE

FOR WARFARE BY ELECTRIC LIGHT
A FIELD SEARCHLIGHT THAT WAS RECENTLY USED IN THE MANŒUVRES OF THE AUSTRIAN ARMY

A SCOUT THAT FLIES

AN ARMY AEROPLANE AND PILOT. AIR SCOUTS WERE USED FROM THE BEGINNING OF THE AMERICAN OPERATIONS AT VERA CRUZ

cruising radius than an aeroplane, and can carry heavier guns, more ammunition, and more men. The picture on page 239 gives a near view of the engine-room, propellers, and steering gear — which looks like a biplane — of a French dirigible.

The Army mule will probably never be supplanted for such work in rough country

ACCESSORIES OF THE ARMY AEROPLANES

LEFT: SELF-RIGHTING BOMBS AND A TELESCOPE FOR THE USE OF THE AERIAL "GUNNER" BOTH IN THE DROPPING OF THE BOMBS AND IN MAKING OBSERVATIONS OF AN ENEMY'S FORTIFICATIONS. RIGHT: AN AUTOMATIC STABILIZING DEVICE. BOTH PHOTOGRAPHS ARE FROM THE ARMY SCHOOL OF AVIATION AT COLLEGE PARK, MD., AT WHICH THE AIR PILOTS OF THE REGULAR ARMY ARE TRAINED

MACHINERY OF AERIAL WARFARE

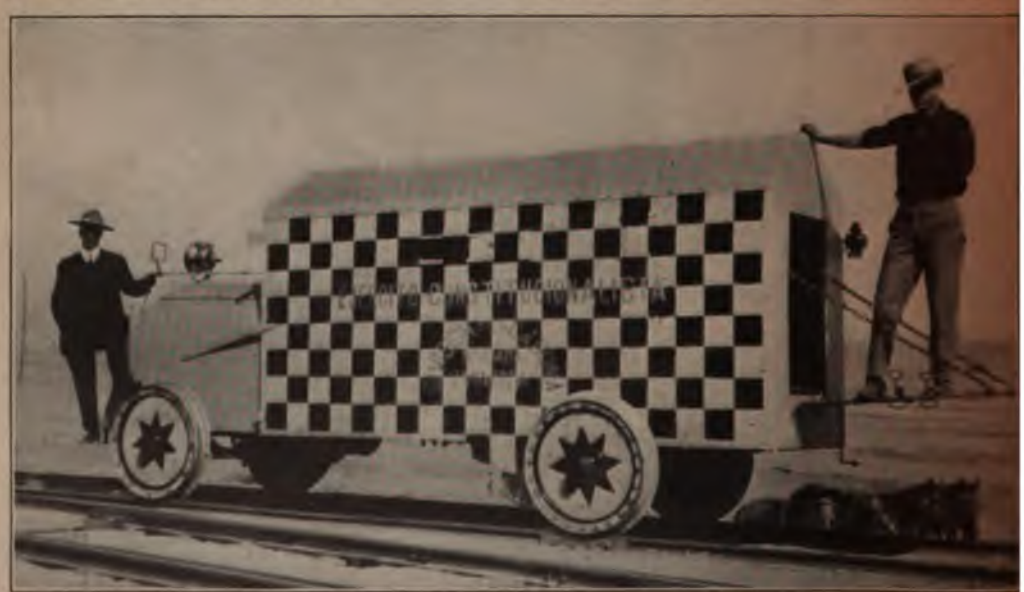
UPPER PICTURE: A KRUPP ARMORED AUTOMOBILE "CRUISER" FOR USE AGAINST AEROPLANES AND DIRIGIBLE BALLOONS. LOWER PICTURE: THE ENGINE-ROOM, PROPELLERS, AND STEERING MECHANISM OF A FRENCH MILITARY DIRIGIBLE

THE MODERN ARMY MULE

AN AUTOMOBILE OF THE TYPE THAT IS USED TO CARRY PROVISIONS AND WAR SUPPLIES FOR THE MOBILIZATION OF THE MILITIA

as hauling light field guns, etc., but for ordinary carriage of bulky supplies the automobile trucks are taking its place because they can carry larger loads at a faster gait and because they are untiring. The truck shown on this page is used by the National Guard of New York.

The armored automobile has become powerful weapon in modern armies. Suc automobiles are fitted with wheels standard railroad gauge that are designe to run equally well on railroad tracks an on wagon roads or cross-country. Thes automobiles are armed with machine gun



A MEXICAN BATTLE CAR

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THE WORLD'S WORK

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'he World's Work

ARTHUR W. PAGE, EDITOR

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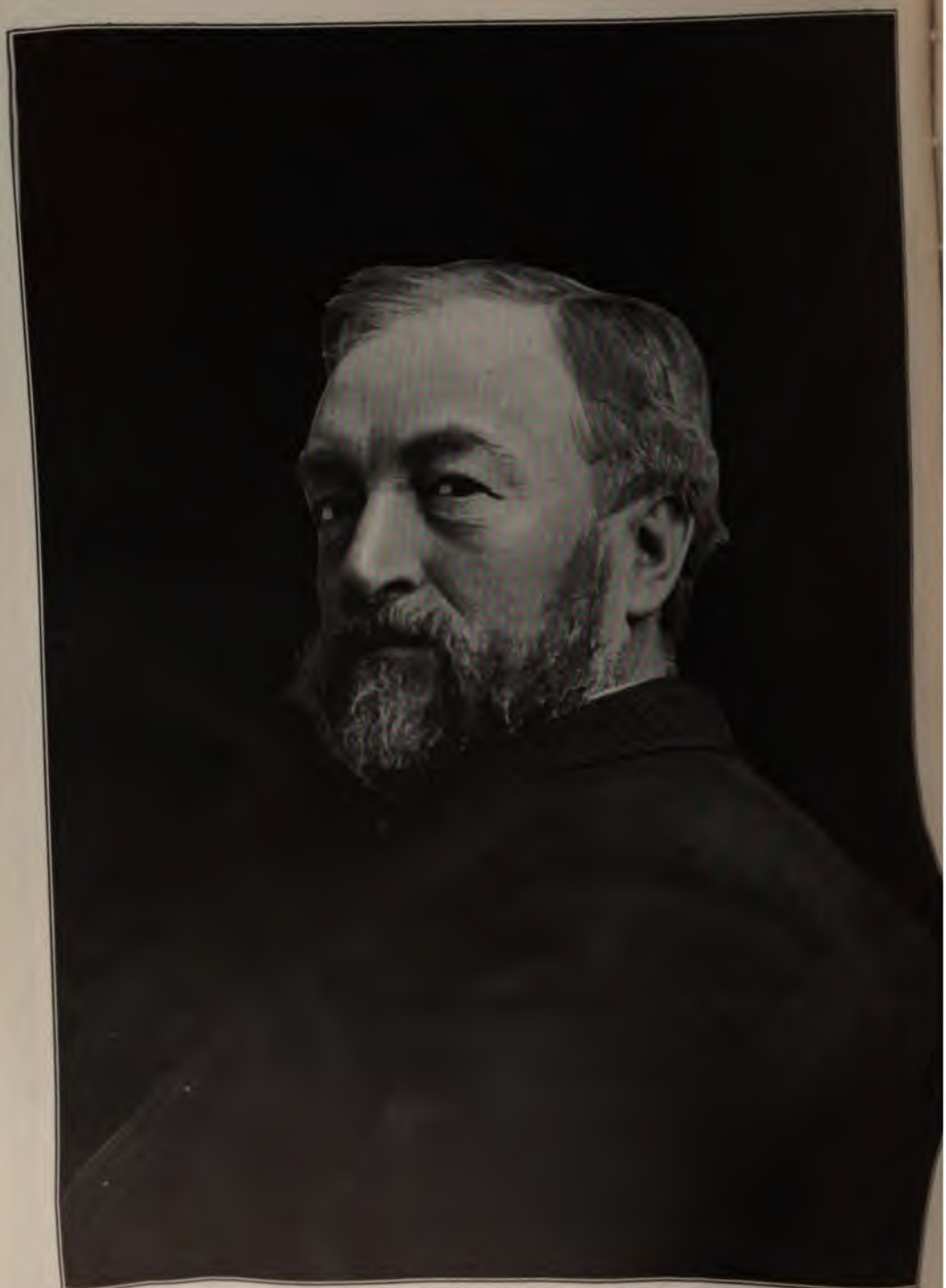

THE LATE SAMUEL P. LANGLEY

THE RECENT FLIGHT OF HIS AËRODROME, THAT LAY IDLE FOR ELEVEN YEARS, PROVES HIM TO BE THE BUILDER OF THE FIRST PRACTICAL FLYING MACHINE, ALTHOUGH HE DIED EIGHT YEARS BEFORE IT HAD A SUCCESSFUL FLIGHT

[See "The March of Events"]

THE
WORLD'S WORK

JULY, 1914

VOLUME XXVIII NUMBER 3

THE MARCH OF EVENTS

BEGINNING with this summer we shall perform our daily tasks under a new political dispensation. For fifty years we have lived under conditions for which the Republican Party is responsible, in so far as politics can affect the affairs of our daily life. It is true that during that time there were two Democratic administrations, but in neither of them did the party succeed in putting much Democratic doctrine into legislation. By the end of this summer, however, the Democratic Party in all probability will have given its fulfilment of the three chief items of the programme upon which it took office — the reduction of the tariff, the reform of the currency, and the amendment of the Sherman Act.

Since March 4, 1913, we have had a new administration, but we have been living chiefly under the old currency and business laws. The new régime really begins with this summer. This new régime, though it has been effected by the Democratic Party, is not necessarily confined to its administration. In the main it will last irrespective of the outcome of the next elections, for there is no popular vote that would support a return to the old tariffs of the Dingley or Aldrich type or to the currency system (or lack of it) under which we have been living. The public unmistakably wanted the tariff reduced and the Sherman Act amended, and it unmistakably needed a new currency system. The new economic basis which has been given us in response to these needs and demands will endure.

Yet the new régime does not begin under very auspicious circumstances. Business is dull all over the world, and this general condition affects our particular situation. Added to this we have a most unquiet and perplexing neighbor whose constant disturbances distract our attention from our own affairs. And besides the slowing up that comes with all changes, there is a lack of confidence bred of failures under the old régime.

So we shall begin doing business under the new order with the caution bred of dull times. We shall begin it also with confidence that on the whole the new conditions are a great improvement on those that preceded. Moreover, the crops show signs of a recurrent plenty which has many times before robbed the pessimists among us of an opportunity to enjoy their misfortunes.

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SIR WILLIAM WILLCOCKS

ILDER OF THE ASSUAN DAM IN EGYPT AND OF THE HINDIEH DAMS IN MESOPO-
SE VISIT TO THIS COUNTRY TO OBSERVE THE PROBLEM OF THE FLOODS OF
SIPPI RIVER LED TO HIS APPOINTMENT AS CONSULTING ENGINEER TO THE
TES RECLAMATION SERVICE

[See "The March of Events"]

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MR. PAUL M. WARBURG

E OF THE PARTNERS IN KUHN, LOEB & COMPANY, OF NEW YORK, WHO WAS CHOSEN A MEMBER OF THE FEDERAL RESERVE BOARD BECAUSE OF HIS UNUSUAL KNOWL- AND WIDE EXPERIENCE IN INTERNATIONAL BANKING, FOR WHICH THE NEW CURRENCY AKES ESPECIAL PROVISION

Photographed by Matzene, Chi

MR. F. W. THOMPSON

OF THE MERCHANTS' LOAN & TRUST COMPANY OF CHICAGO, WHO WAS ELECTED PRESI
OF THE RECENTLY ORGANIZED FARM MORTGAGE BANKERS' ASSOCIATION OF AMERIC

[See "The March of Event

MR. WILLIAM COOPER PROCTER

WHO HAS DEVISED A SYSTEM OF SHARING PROFITS WITH HIS EMPLOYEE INCREASED THE EFFICIENCY OF HIS FACTORY AND ELIMINATED LABOR TROUBLE HIMSELF AND THE PEOPLE THAT WORK FOR HIM

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MR. THOMAS A. EDISON AND MR. HENRY FORD

WHO HAVE AGREED TO COMBINE THEIR INVENTIVE GENIUS AND ABILITY IN CHEAP PRODUCTION FOR THE MANUFACTURE OF A LOW-PRICED ELECTRIC-DRIVEN AUTOMOBILE

[illegible]

ʌITS OF "DOLLAR HONESTY"

GRESS has asked the Interstate ›mmerce Commission to investi- te the affairs of the New York, n & Hartford Railroad, presum- : theory that it is more valuable l the facts as a basis for new to prevent catastrophes in the ld in the future than to allow ey-General to sue the officers of nder existing law, if they have d it, as a deterrent to such ıstrophes. Both methods can- owed, for the testimony of the the road automatically grants unity.

; has decided, then, to look over on and see what can be learned The interesting thing, of course, the human point of view and financial point of view, is the ; personality of the late J. Iorgan.

' the *Wall Street Journal* printed ng chronology of the events that the New Haven's payment of o for the Westchester road, ording to Mr. Mellen, was not e than half that amount:

J. P. Morgan was hailed as the : United States, if not of the world, President Roosevelt and the bank- nity had invited Mr. Morgan to ıarpest monetary panic the world n.

an replied that if he could have the United States Treasury and the of all financial interests he would . With Morgan and with nobody ıdy was willing to coöperate.

of the Treasury Cortelyou swept ste basket a tableload of financial practically turned over the United sury to Mr. Morgan.

ts of big corporations, banks, and nies, so far as they were not already , were generally surrendered to him. public soon forgets. In 1907, the to Morgan to save the country. was hailed as the hero of 1907. In he cannot reply, he is held to ac- for the greatest railroad disaster of the country has ever seen.

he facts come out.

In the beginning of 1907, Mr. Mellen was offered $27,000,000 of French money, at a comparatively low rate. Mr. Mellen said he did not want the millions; he had no use for them. Mr. Morgan said, as chairman of the New Haven finance committee, "Take all you can get."

And Mr. Mellen borrowed and continued borrowing early in 1907 until he had piled up more than $50,000,000. When the panic was sharpest the New Haven road was able to lend money to the Pennsylvania Railroad, the New York Central Railroad, and to stand behind the savings banks of Connecticut and Rhode Island and prevent any runs thereupon.

Mr. Morgan also did other things, but was never called upon to report to the President or the public.

He took $10,000,000 of money from the United States Steel Corporation, and "pegged" Steel common at 22, and this is probably the first time this statement ever appeared in print. He distributed trust company millions to the weaker trust companies; money of the strongest banks to the weaker banks, where necessary; provided money for the Stock Exchange and kept it from closing; saved the big banking house of Moore & Schley by getting Government permission to take over the Tennessee Coal & Iron shares into the treasury of the United States Steel Corporation.

Tennessee Coal & Iron was not, at that moment, worth the money paid for it. But its purchase helped save the country. The Steel Corporation was able to do it, and in ten years the transaction was likely to prove profitable. It is doubtful if, even to-day, the Steel Corporation could dispose of this property at what it cost; but the world approved the transaction.

Now, at that time, had Mr. Morgan or Mr. Mellen called the twenty-seven directors of the New Haven road together, and told what had been done with the New Haven treasury in arresting the panic, the directors might have summoned the stockholders and the then 22,000 shareholders of the New Haven road might have gladly voted in approval of Mr. Morgan's action with their treasury, whether it was pledged to the savings banks of Connecticut or Rhode Island, or lent to the Pennsylvania or New York Central, or whatever else was done with it.

The only thing in Mr. Mellen's testimony that shows what was really done is that dramatic incident in the midst of the 1907 panic, when Mr. Mellen asked for a more extended report in respect to the disposition of the $11,000,000 in the purchase of the New York, Westchester & Boston.

Mr. Morgan, as was often his custom, shut off all discussion and inquiry. "Do you think you know more about how it ought to be drawn than Stetson does?"

Mr. Stetson was Mr. Morgan's confidential lawyer, and not the counselor of Mr. Mellen.

The entry in the loan ledger of J. P. Morgan & Co. reads: "October 30, 1907, By cash from New York, New Haven & Hartford Railroad Co. (Special Account No. 2) in payment of loans made to the Millbrook Co., $11,155,000."

Everybody knows that the centre of the panic was around the Trust Company of America, which had some Tennessee Coal & Iron loans, and was interested in the New York, Westchester & Boston. Had the Trust Company of America gone down, no one can now tell what would have been the extent of that panic with other trust companies and banks in New York and throughout the world. The gold base of credit transactions never before had such a trial put upon it.

Mr. Morgan relieved Oakleigh Thorne and his Trust Company of America. Part of the relief was in the purchase of the New York, Westchester & Boston for $11,000,000. Many New Haven directors have for some years believed that in this was the New Haven's contribution to the 1907 panic relief.

The matter had been in negotiation for a long time; but the 1907 panic forced its conclusion for the public good. It is probable that but for the 1907 panic no such conclusion of the matter would ever have been reached. It was estimated at the time that $5,000,000 more would make the road a paying proposition. To-day it is probably the best built railroad in the United States, but its value depends upon the working out of large plans for the benefit of New England, in its connection with the Pennsylvania system and the rest of the country.

This chronology may not be minutely accurate, and the same facts have elsewhere been given very different interpretation; but, accepting this bare outline as it is printed, it furnishes Congress and the public the basis for one or two important deductions.

Mr. Morgan, under the laws as then administered and in accordance with the then customs of business, had acquired such an ascendancy in his field that the Government invoked his aid in stopping the panic. To stop the panic "he distributed trust company millions to the weaker trust companies; money of the strongest banks to the weaker banks, where necessary; provided money for the Stock Exchange and kept it from closing; saved the big banking house of Moore & Schley by getting Government permission to take over the Tennessee Coal & Iron shares into the treasury of the United States Steel Corporation;" and bought the Westchester road for the New Haven for $11,000,000. Here was an emergency, and a strong man met it in characteristic fashion. It was not his fault but the fault of the conditions which gave rise to the emergency that made it necessary for him to take any one's money he could lay hands on to bolster up the weak places. It was much like commandeering supplies in time of war. In this case, as usually in the conduct of war, there is a long accounting afterward. Every one wants to know what became of his particular property; and methods which pass muster in the excitement of panic or war look less picturesque and proper under later dissection.

These New Haven disclosures all point to one line of action. No good will come of abusing the late Mr. Morgan for his emergency tactics. The thing to do is to change the conditions so that no man will be called upon to do such things in any emergency of the future.

The new Currency Act is one step in that direction. It creates a system by which panics can be stopped without such war measures as Mr. Morgan used; and if the Federal Reserve Board ever has to use extraordinary measures it must be remembered that it is a governmental body and not a private individual against whom motives of private gain can be urged. The Federal Reserve Act means that no private citizen or a group of them will be called again to take the money of particular companies and throw it against the rising flood of panic.

But it is easily possible to conceive of a man with the power, or even half the power, of the late Mr. Morgan, who would take war measures with other people's money when there was no panic. There are plenty of instances of this. To name particular men is to becloud the issue with personalities. The way to prevent the recurrence of such things is to see how men acquire such power, and if it may not be

iled without losing the benefit of their y. These men's ability is, of course, oundation of their power, but they ble very greatly to enlarge the power ır present corporation laws and prac- — for which, incidentally, both our ıtures and the business world are nsible.

sometimes seems that a corporation :heme to invest a few men with power ıat the attendant responsibility is ıd their ability to meet it. Certainly a very strong character becomes the nating director in a dozen or two cor- ions, especially if these corporations ete or deal with one another, he has ıe responsible for so much money and ıny different and conflicting points of that there is no possibility that he e able minutely to live up to all his ıtions. The best that he can do if he scientious is to have a general respon- y to the whole lot. The worst he o, if he wishes to, is to wreck half a of them for the benefit of the others nself. It is true that the law pro- many safeguards against one-man ıation; the first of these safeguards is est of the board of directors. It is se true that this safeguard is not safe. As Mr. Mellen paints them, her directors of the New Haven cut a sorry figure in their fear even to ask Morgan about money for which they just as responsible as he was. All vas good and all that was bad in the Haven belongs to Mr. Morgan, so Mellen says. The rest of the board ectors did not direct; and it must be nbered that the New Haven was not Morgan's first interest — it was one of that came second to his interest in nking house.

the hands of the best men the power omes from interlocking directorates t be used with strict accountability the interests concerned. In the of a bad man it can do infinite ge. And with such power a man needs to lack superhuman wisdom ad. The ordinary "dollar honesty" uffices in the less complicated re- bilities of ordinary life is not suffi- for the dominant plural director. Very few corporations or corporation heads ever fail in "dollar honesty." The financial world is probably ahead of all other parts of our national life in this simpler form of honesty: witness the exchange of millions of dollars' worth of securities without loss on the Stock Exchange, safeguarded only by little scribbled memoranda hardly intelligible to any one outside the stockbroking business. But "dollar honesty" will not take a man scatheless through the responsibilities with which our corporate system artificially endows men. We have made possible places so great and so complicated that there are not men of enough wisdom and far-seeing morality to fill them. And these positions give men of blunted sensibilities or vicious aims terrible opportunities for harm.

Herein lies the real basis for the demand for the abolition of interlocking directorates by law. There is a real need for the curtailment of power and responsibility unless we are able to produce an average run of strong men of business with greater ability, wisdom, and integrity than the late Mr. Morgan.

II

In the conduct of business, the end of interlocking directorates would make two noteworthy changes. It would take from the boards of directors of the larger corporations many of the dominating financial figures and many of the dummy figures who are put on the boards to represent smaller financial institutions and to do as they are told by the more powerful directors. In other more evenly balanced boards the companies will lose men of ripe business experience, who, though their own particular affairs take most of their time, are still of great value in advising the company in large matters of policy. In place of these losses, will almost inevitably come upon the boards the men who actually carry on the business, whose every interest and endeavor is for the company's prosperity. They will lack somewhat the wide experience of the abler of the present kind of directors. On the other hand, they will have more singleness of purpose and a more intimate knowledge of the business than is possible for the present directors

who have so many other concerns. Nor is there any reason to believe that a company which builds up its strength and personnel from its own field cannot succeed as well as one which borrows directing heads from the financial world. The Standard Oil Company, for example, has always been directed by "oil" men. It has picked up its personnel from its own field and yet that has not set a limit to its size or its effectiveness.

But whatever the loss or gain of effectiveness in honest business by the change to directors who are primarily interested in the concerns which they direct, there is no question that the change would greatly lessen the chance that unscrupulous men may get control of a company to "bleed" it or to ruin it for some ulterior purpose.

Taken together, the reform of the currency and the end of the system of interlocking directorates should tend to bring us back to a simpler and more normal state of business, in which men will not be called upon for superhuman responsibilities and abused for failures to live up to them, and in which there will be greater singleness of purpose if not more wisdom in the conduct of corporate affairs.

It will mean the democratization of business. Our corporation laws, designed to concentrate power as a means to efficiency, produced an effect in business similar to the effect which the concentration of power has always produced in politics. It has showed immediate results, produced great characters, and finally given way to democracy because the responsibilities of an oligarchy are too great for human nature. If we do not entirely like the way our business has been run, let us remember that we created the conditions, and let us, without rancor, change the conditions so that we shall not again expect more of men than history shows they can accomplish.

OUR INTEREST IN MEXICAN REFORMS

WE ARE getting to a place in our relations with Mexico where we must have an understanding of the conditions upon which permanent peace may be effected in that country. Until recently many people believed that the old Mexican question, "After Diaz, What?" would have to be answered by another dictator. In the last six months, however, it has been growing increasingly evident by the course of the revolution that even another Diaz in his prime would not be able to maintain the old order. That order was based upon the complete subjugation of the peon class. At one time there was a very considerable population of small landowners in Mexico, but under the Diaz dictatorship they were in a large part dispossessed of their holdings and put back into a condition that bordered on slavery, so that the word "peon" changed its meaning from "farmer" to "serf." This was not accomplished without resistance, but the resistance was usually ineffective. There was no free press in Mexico. The people in one section knew little of the conditions elsewhere and, therefore, they lost the opportunity to make common cause of their complaints. Nevertheless, the practice of dispossession left a deep and sullen feeling of rebellion in a none too law-abiding people.

So the Diaz Government settled the question of land titles in Mexico by dispossessing the poor who had no accurate boundaries or means to hire surveyors and lawyers to get them, and sold the land for three or four cents an acre to a small number of government favorites who did have the money to establish legal titles.

At the same time Mexico's natural resources were opened to foreign capital, in large part American. The foreign companies were blackmailed for bribes and bothered with petty exactions, but they received concessions from the Mexican Government that were worth many times what they paid for them with the blackmail to the officials thrown in. Those Mexicans who could understand what was going on felt that Diaz was giving the country away in order to get it developed, and that on such a basis the more Mexico prospered the poorer the Mexicans would be. The better informed Mexicans feared the "gringoes" and hated their own Government. The peons hated the Government and the rich landowners, whether "gringo" or Mexican. Besides, they felt what

might be called a racial antipathy to the Americans in particular.

Nevertheless, it was the Americans who were the indirect cause of the present revolution. The more of them there were in Mexico the less they acquiesced in the scheme of government by bribery. American mines and ranches did not practice peonage. They usually paid their laborers in money, and the effect of this practice was to stimulate the protest against Mexican methods. Moreover, the American border has always been a convenient place from which to start revolutions in Mexico. Out of these conditions arose the armed protest against the old régime in Mexico, a protest so universal, particularly in the northern states, that its permanent suppression under the old order is not possible. This is the reason that any plan which we make for the permanent peace of Mexico must take into account the abolition of peonage, some method of distributing the land, and a fair and honest policy toward foreign capital. Unless our plan takes these things into account it is bound to fail, for even our Army, though it is sufficiently large to conquer any organized resistance in Mexico, could hardly be maintained there to perpetuate slavery and corruption.

Either, then, we must help Mexico plan and carry out the necessary reforms, or else wash our hands of the whole problem, a course that is prohibited both by proximity and by the Monroe Doctrine.

SIR WILLIAM WILLCOCKS'S PLAN FOR THE MISSISSIPPI RIVER

SIR WILLIAM WILLCOCKS, the distinguished British engineer who built the Assuan Dam across the Nile and who is at work upon the control of the Euphrates and Tigris rivers in Mesopotamia, has recently made a trip along the Mississippi River and its tributaries. His comments upon what we are doing with our great river are exceedingly frank and helpful, for they are the comments of a master of river control who has no ax to grind and no particular project of rectification to further.

His advice is that we begin at the bottom and work up, that we build the levees on the lower reaches of the river so strong that they can stand any possible strain. When this is done we can work gradually up the river, strengthening the levees as we go so that as more and more of the river course is confined the resulting strain will not cause such breaks as occur now. In time this policy will give us a well mastered river from the Gulf to Cairo. But such a policy will take time. Sir William criticises the hurry and lack of plan of our levee work in this way:

"The general scheme of your endeavors to control the Mississippi seems to have been characterized from the start by the conviction that a river can be put into close confinement along its entire length straightaway.

"Such confinement you produce by building embankments, levees as you call them. Having begun at the bottom you should have worked slowly up, taking one bank at a time as the ancients did, carefully seeing to it that every mile of levee lower down was up to its full height before you built a mile of levee higher up the river.

"Instead, you have allowed the levees to be put up quite irregularly, and as each upper levee has been erected floods have worried those down below.

"You have consoled yourselves by saying that they had 200 breaches in 1882 and 10 in 1912; but the 200 breaches in 1882, with a little depth of water on the insignificant levees, did less damage than the 10 breaches in 1912, with the great depth of water against your much higher present levees."

As a part of the levee programme Sir William Willcocks proposed using 3,000,000 acres of the St. Francis Basin in northeastern Arkansas as an overflow reservoir, a kind of safety valve if the pressure of the river should ever become too great for the levees. However, he thinks that in time this reservoir might be permanently reclaimed, for "as the properly managed river widened its own channel in the lower reaches, it would leave continually lessening volumes of water to be cared for in the St. Francis basin."

With the outline of the solution of this greatest natural problem of ours, the master

of the Nile has also pointed out our chief difficulty in following such a plan. As he told an audience in Pittsburg:

"Here are you, all of you honorable men, but looking on Uncle Sam as lawful prey. You would not rob one another, you would not permit robbery of yourselves if you could help it, but in a sense you are all willing to dip your hands into the national pork barrel unfairly for the benefit of your individual locality."

We are very careful that each locality gets its share, and careless of the total result. As the English engineer points out, the opposite is the course of success:

"You must think of the whole, not of every individual, if you wish to succeed on the Mississippi. Nature's rule is: Careless of the single life, careful of the type. If you are careful of the single life and careless of the type you will fail where Nature succeeds."

What we need especially is less solicitude for the expenditure of money in particular places and more solicitude for the comprehensive control of the river irrespective of the localities in which the money is spent.

THE IRONY OF "LANGLEY'S FOLLY"

ON THURSDAY, May 28, 1914, the first successful aëroplane in the world made its first successful flight. Ever since the winter of 1902 it has lain half repaired in the store-rooms of the Smithsonian Institution at Washington, waiting for some one to take it out and fly in it. It was ready to fly when the Wright brothers were experimenting with gliders and Mr. Glenn H. Curtiss was still manufacturing motorcycles.

The same kind of perverse and spiteful fate that let Captain Scott perish in his trip to the Pole that had already been discovered, let Professor Samuel P. Langley die with his flying machine perfected but still unflown.

As far back as 1891 his experiments proved to him that it was possible to construct flying machines. Five years later he had a small model machine that flew half a mile. In 1898, as president of the Smithsonian, the Government's great scientific institution, he received $50,000 from Congress to make a machine that would carry a man in the air. In the fall of 1903 he and Mr. Charles M. Manly, who assisted in making the machine, had it perfected and loaded upon a specially constructed houseboat on the Potomac River. It was to start from the roof of the houseboat and fly over the water. After many vexatious delays Mr. Manly finally made the attempt. A guy rope caught as the machine started, its nose turned downward, and within fifty yards of the houseboat the aërodrome disappeared under the water.

Professor Langley had it fished out of the river and repaired. To show immediate results if possible, in order to get another appropriation, a second trial was made in December, 1903. Again the starting device was faulty and the machine went into the river. Mr. Manly was rescued, more dead than alive, but still convinced, with his chief, that if they could ever get the machine launched into the air without mishap it would fly.

But there was no more money with which to get it started, and Professor Langley's death in 1906 stopped all interest in "Langley's Folly" until this year.

The Wrights had the benefit of Langley's calculations, and Dr. Alexander Graham Bell drew from them the inspiration for his aërial experiment station at Hammondsport, but the great inventor did not live even to see other men's machines fly.

When, at last, after its eleven years of oblivion, during which flying machines have become common, "Langley's Folly" was fitted with pontoons for starting and manned with an experienced aviator, it rose from the water and sailed through the air with all the steadiness and success that would have given its creator the credit of the most extraordinary invention of the age.

It takes nothing from the credit of the Wrights' achievement that we know now that Langley succeeded — any more than it takes from Amundsen's credit to know that Scott, too, reached the Pole; but it is a curious fate that gives a man the faith and courage of great accomplishment only to rob him of their just reward.

A GREEN GOVERNMENT IN IRELAND

AFTER many generations of persistent agitation, Ireland has obtained Home Rule. The House ommons has passed the bill three times, hat it becomes law without the neces- of the approval of the House of Lords. eed, it was to enable the Home Rule to pass that the House of Lords was n of its power.

is a very different Ireland that finally Home Rule from the Ireland that first anded it. It was a poverty-stricken ill-governed land that asked the right govern itself. When the request is lly granted it is a prosperous and well erned country. Sir Horace Plunkett's gramme of breaking up the big estates dividing the land has borne fruit. Irish no longer emigrate to escape vation. There is a chance for all at e and most of them stay to try their une there. Even some who formerly grated are going back. It is, therefore, er auspicious circumstances that the government is launched. The only n in its side is the irreconcilable coven- rs of Ulster, who will bear much the e relation to the rest of Ireland that the have to England.

he effect of the Home Rule bill on Eng- will be almost as great as its effect n Ireland. The Liberal Government's ority, and, therefore, its ability to carry rard Mr. Lloyd George's programme of al reform, has been made possible by adherence of Irish members' votes, by the Liberal Party's sponsorship of ne Rule. The passage of that bill re- s the Irish members of Parliament 103 to 42, and that correspond- y reduces the Liberal majority. More- , it ends the unfortunate condition in h the Irish members, caring little for thing but Home Rule, could barter r support of any other measures for ort of their one pet bill. The elimina- of the irreconcilable Irish ought to be eat boon to English politics in general. iously enough, it is of particular parti- advantage to the Conservatives who bitterly opposed it.

To appease Ulster, Prime Minister Asquith promises certain concessions in a supplementary measure to be passed after the Home Rule bill, and whether these are satisfactory or not Ulster has practically no alternative but to accept them, for its threat of armed resistance, if it did not stop the passage of the bill, can hardly be expected to force its repeal or prevent its enforcement.

Both for Ireland and for England Home Rule ought to be beneficial. It will allow each to attend to its own affairs, a privilege which neither has enjoyed recently. And even Ulster is not in danger of much adverse discrimination. The Home Rule bill does not give the new Irish parliament the power to restrict religious liberty, and it would be inconceivable folly for the new government to maltreat the Protestant counties in any way and by so doing prove the case of the chief enemies of Home Rule.

THE HOUSE IN THE MIDDLE OF TOWN

THE other day a letter came to the WORLD'S WORK telling how a group of fifty people in a small country village in New England had subscribed $2,500 with which to purchase a colonial house in the centre of the town to be used as a community gathering place. Incidentally the letter asked for information about the incorporation and the proper rules of organization for such a project. It is probable that some by-laws will be better for the organization than others, but if the truth were known it does not matter very much what rules they make, for this community has already shown that it has a neighborly spirit and a town consciousness that relegates such unimportant details as rules of organization and codes of by-laws to their proper place.

It is one of the most cheerful signs of the times that cities, towns, counties, and small country communities are developing within themselves a sense of neighborliness and a local pride. This spirit has many ways of expressing itself, not the least effective of which is "the purchase of a colonial house in the middle of the town to be used as a community gathering place."

AN INTERSTATE AGRICULTURAL CONGRESS

TWO years ago St. Joseph, Mo., awoke to its responsibilities as the urban centre of the rich agricultural region that lies around the point where the boundaries of Missouri, Iowa, Kansas, and Nebraska converge. Its leading men organized the Interstate Agricultural and Industrial Congress, which brought together 3,665 representative farmers from that region, most of the business men of St. Joseph, and such experts in the various problems of country life as Mr. W. C. Brown, former president of the New York Central Railroad, President H. J. Waters, of the Kansas State Agricultural College, and Dr. L. L. Lumsden, of the United States Public Health Service, for three days of conferences and "get acquainted" meetings. One result of the congress was that one thousand farmers pledged a dollar apiece for prizes for the best corn at a corn show this year. Another result was that town and country were drawn together in a new spirit of friendliness and mutual helpfulness.

Now the men who managed that meeting announce that the second congress will be held at St. Joseph for four days in the early part of next December. The plans this year have been enlarged from the series of addresses that were the whole programme last year to include exhibits from the agricultural colleges of the four states, a horticultural exhibit, and a corn-growing contest. The discussions will include improved methods in the building and maintenance of roads, in the management of rural schools, and in the work of rural Sunday schools.

The especial distinction of the first congress was its success in attracting the farmers themselves — by the thousand — to participate in its discussions. The purpose of this second congress is to perpetuate that interest and to found, if possible, an informal institution that will yearly renew the bond of sympathy between the city and the country and yearly refresh the farmers' ideas upon the best methods of carrying on their fundamental industry prosperously and contentedly.

A COMMON-SENSE CALABOOSE IN DULUTH

DULUTH, Minn., at the instance of the Commercial Club, has established a work farm as a substitute for a jail for petty offenders who are not habitual criminals. When a drunken lumberjack or miner or railroad "section hand" is sentenced to ten or twenty days of confinement, he is sent to this farm of one thousand acres, a few miles from the city, to do his "hard labor." The "farm" is mostly second-growth timber land. A part of it has been cleared, and here rude temporary buildings have been erected. In the midst of a great pile of logs stands a portable sawmill. The workmen are the petty offenders; the foremen are unarmed guards. The men are at the sort of work they are used to, in the fresh air. They are under restraint; the law has laid its hand on their shoulders and is reminding them that Society can enforce its ordinances. But the lesson is taught in a temper of firm admonition, not in a vengeful temper nor by a senseless period of stagnation in an iron cage. It is all the more likely to be effective for that.

THE LABORER'S CAR

MR. HENRY FORD, whose genius for standardization has made the "everyman's" car possible, and Mr. Thomas A. Edison, whose many inventions have made modern life possible, have become partners in a scheme to put an electric automobile within the means of the multitude in the city.

Perhaps it would be foolish to prophesy a day when the city laborer will go to his work in an electric and when a line of their cars will stand in front of every building under construction, and yet it is no more difficult to picture such a condition now — particularly if the widespread development of central electrical power stations in the cities continues as it promises to do — than it was ten years ago to picture millions of the men who served our funny papers as butts and incidentally tilled the soil using gasolene automobiles as a matter of course part of their daily existence.

UNIONS AND THE SHERMAN ACT

IE time ago a department store one of our large cities bought ıme goods from a manufacturer at odds with the local union. A delegate went to the manager of e and told him not to buy from nufacturer. The store manager hat he was not concerned in the ight and that, as he could serve his est by buying from the non-union turer, he would continue to do so. ext day a woman came into the d ordered a large ice chest to be l C. O. D. on the top floor of an nt, that had no elevator, four or s from the store. When the ice finally in place the woman told verymen from the store that she want it because she had learned store dealt with manufacturers e "unfair" to labor. The next milar thing happened, and again after. Such annoyance finally so common that the manager of e notified the offending manu- that he would no longer deal with hen all went well again — except public got a poorer article made in shop for the price it used to pay etter article.

ertain small town the school au- had decided upon a set of readers schools, their judgment being tirely upon the educational merits ooks and upon the price. When hase was about to be made some ıembers of the town council who mbers of unions were told that oks were not made entirely in a op. The members of the council ly that pays the school bills) l that another set of books, the of entirely union shops, be sub- The school authorities made ıge and all went well — except children of the town were taught rior books.

npany that employs non-union he manufacture of building ma- ıld a large part of its product in ity near its plant. The unions of the building trades refused to allow their members to work on buildings where the materials came from this company. The unions were very strong and the company was driven out of that field - in other words competition was reduced by the elimination of one competitor. Unions have gone so far as to send a notice to the manufacturing customers of a business concern that no union members would do any work on materials coming from the non-union house.

Thousands of incidents like this have happened, hampering free and unrestricted competition to the public detriment by union conspiracies to cripple the business of non-union manufacturers. Such practices by a manufacturer aimed to secure a monopoly for his wares are indictable under the Sherman Act. It is probable that the courts would hold the unions guilty, also. This is why the American Federation of Labor asked Congress to exempt labor unions from the provisions of the Sherman Act. Mr. Gompers's testimony seems to show that he bases his demand not upon any theory of law, or equity, but upon the desire of the unions to be free to wage their battles, untrammeled by any rules of warfare or any regard for the public good. It is a foolish thing for the labor leaders thus to take their cause outside the law and make of themselves a special interest. In the long run it must be disastrous to the unions, for the public is tolerant of special interests only when they are not very much in evidence.

On the other hand, the unions' desire to fight without regard to the rules of industrial warfare, or to the law of the land, is easily understood. Many and many a time their opponents have fought in barbarous fashion. The first thing for employers to do who wish to see labor disputes prevented or settled in a civilized way is to exert their utmost influence not only to have their dealings fair but to make other employers fair also, for the misdeeds of any employer are likely to affect all other employers that are engaged in the same industry.

It is not enough to keep the unions within the Sherman Act. That is necessary. But along with it should go the

elimination of the special provocation that sometimes seems to justify them in wishing to fight outside the law.

WELFARE WORK AND PATERNALISM

THE Colorado Fuel & Iron Company has for years carried on welfare work for its employees. It has hospitals, model houses, reading rooms; it encourages gardens, etc. It spent a good deal of money and honest effort in trying to uplift its employees. At the end of it all it was plunged in a bloody war with the people it was trying to help. This is an aggravated but not an isolated example of apparent ingratitude. Such things are happening all over the country, especially where industry has suddenly sprung up in sparsely settled communities. In many of the cotton mill towns in the South, for example, the mill owners are doing welfare work with the best intentions, and with every likelihood that it will not save them from ultimate trouble.

The reason is that in the long run men wish to be the judges of their own conditions. It is human nature to dislike a despotism even when it is a benevolent despotism. Moreover, a company that indulges in welfare work, and especially if it advertises its welfare work, is subject to the charge of hypocrisy if its wages or rules of employment arouse the antagonism of its workers. "They pay us low wages and give us back a part of the saving in reading rooms. I'd rather have the money and provide my own reading." Such is the argument of the workers. It is based on the fundamental desire for independence. It is not the spirit of this country for men to like being told how to live, what to read, etc., and consequently much of the uplifting welfare work that is done, though it may improve the standards of the workers, does not improve their relations with their employers.

On the other hand, there is a kind of welfare work that is not despotic, dictatorial, or condescending. There are places where employees run their own welfare work and feel no loss of independence. Any company with money can furnish the appliances, but it takes human sympathy and wisdom to make them work. In Colorado the welfare work produced neither prosperity nor contentment. It was offered as a palliative to conditions that were fraught with possibilities of trouble. The point of the whole matter is that permanent peace is hard to build on a basis of paternalism, and if an industry feels that it must have foreign labor that is easily led under a paternal despotism, it is always taking the risk that it will be just as easily led out of it again.

CRITICISM AND LACK OF CONFIDENCE

PRESIDENT VANDERLIP, of the National City Bank of New York, the largest bank in the country, attributes the diseases of the body politic to a hysteria of criticism. This is a very common saying in financial centres. Undoubtedly there is much criticism which is unfounded and, therefore, harmful; but Mr. Vanderlip has confused his causes and results. The cause of our trouble is not hysterical criticism. That is one of the evil results of mismanagement in high places.

Let us look at the railroad field, for the school of thinkers who follow Mr. Vanderlip in his "let us alone" doctrine cite the railroads as their pet example.

What are the facts in the railroad situation? The roads need new capital, and it is hard for them to get it. The investing public has heard so much criticism of the railroads that it is loath to lend. Moreover, expenses are up and revenues down, and altogether the roads need sympathy, freight, and money. Instead, they get abuse, and legislation, which the "let us alone" doctrinaires feel is heaped upon them out of pure meanness by the press and for personal popularity by the politicians.

But the truth is that two years ago the railroads were in a fair way to become popular. They had in large measure ceased to corrupt legislatures, and the popular wrath on that score had subsided and the public's interest in freight rates seemed pretty well protected by various commis-

Into this calm came the failure of Frisco, followed by the Rock Island al, and the collapse of the New n property and the remarkable testi- of its former president. The public patronized these roads and invested eir securities would be more than n if it did not criticise, and it is not ising that there should be hysterical ent upon such hysterical finance. cause of the evils in the body politic nuch farther back than the present isms. They are but one of the results. ps much of the criticism does no but on the other hand to pass such es of events without protest or com- would seem to acquiesce in a state of s which even the most enthusiastic ee of the "let us alone" doctrine ardly approve.

ANGELICAL GOVERNMENT

IS an old saying that the Church at ome would die if it were not for the timulation of foreign missions. The kind of result from evangelical s can be traced in our other activities ll as in the Church. The evangelical h of our Government is the Army. Americans have never seen 5,000 ar soldiers together. They see little e Army and think little of it, except nes like these, and even now it is ht of in the old way as only a de- tive force. In truth, however, it is y different thing. It has the power struction which the old time armies — and has it greatly improved — but also a new spirit. It is a constructive and from its missionary work afield not only advantages to the people whom it is in contact but far greater ntages to the people at home.

r generations the population of the ern States suffered from hookworm. Army also found hookworm in Porto In curing the Porto Ricans the al officers pointed the way to the of the people at home. For gener- s our gulf coast ports were yellow ports. What the Army did in Cuba yellow fever from our shores. In the pines the inmates of Bilibid prison were put on a parole system. Now there are prisoners in many states in the Union under similar humane treatment.

The Army is a pioneer in the progress of sanitation and humanitarianism, and if our overseas expeditions have cost us dear in men and money they have saved us many more lives and much more money in the knowledge that we have gained. For every soldier shot in foreign service we have saved perhaps a hundred citizens' lives at home, and for every dollar spent abroad the Southern States alone have saved many to match it.

RURAL NEGRO SEGREGATION

IN PRACTICALLY all cities in this country in which there is a large Negro population, that population is segregated into districts. In some of the Southern cities the practice of segregation is clothed with a legal aspect. Whether or not the segregation ordinances are constitutional or wise in theory they are merely the recognition of an existing condition and it is certain that ordinances against segregation could not be effective.

As a logical development of city segregation comes the suggestion of rural segregation. There are, however, such differences between the city and the country that it does not necessarily follow that rural segregation is wise even if city segregation is an accepted fact.

Without segregation in the city the two races are thrown into too intimate proximity. This is not true in the country.

Even with segregation in the city the example of the whites is not lost upon the Negroes. Under rural segregation, it would to a large extent be lost.

In the cities in which Negroes live in quarters of their own, the Negroes get the benefit of the communities' efforts on street maintenance, sanitation, police, water, sewage, health inspection, etc. In the country the Negro districts would be left to their own devices and except in a few cases they would in all probability degenerate into districts of poverty and disease, if not of crime. As evidence against such a supposition is the model Negro community of Mound Bayou, Miss. As evidence

in favor of it are the hundreds of almost purely Negro rural communities in the black belt of Alabama and Mississippi which have sunk to a very low level.

For their own sake, therefore, it does not seem wise for the white people of any state to drive the Negroes into purely Negro communities and to have the state dotted with backward, unenlightened, and unprogressive communities. Segregating the sanitary, the economic, and the intellectual handicaps under which the Negro suffers so that they may be intensified is not the way to add to the permanent prosperity of any commonwealth, for the permanent prosperity of any community must be measured by the use of all its resources, both human and natural.

PISGAH A NATIONAL FOREST

THE sale of the late George W. Vanderbilt's Pisgah Forest — 86,700 acres of properly cared for mountain slopes — to the Government calls attention to the establishment of National Forests in the East which has been proceeding so quietly that few people realized that it was going on at all.

As explained elsewhere in this number of the magazine by Mr. William L. Hall, the assistant forester in charge of the purchases of land for these Forests, about a million acres of the most beautiful and valuable hardwood forests in this country have been acquired by the Government, primarily for the protection of the headwaters of navigable streams. Such protection implies the guarding of the Forests from fire and the proper cutting of the grown timber — practically the encouragement of a permanent lumber industry in the mountains which in turn will furnish a source of profit that will do much to make conditions of good living possible for many of the inhabitants. Besides this the advent of the Forest Service in the Appalachians means the opening of trails and roads into a vacation country of even greater beauty and extent than the mountains of New England and New York.

As National Forests this country is just as open to the public for recreation as any National Park, the only difference being that National Forests are patrolled by rangers who belong properly to such work whereas National Parks are in the hands of the soldiers who might, with better results for the Army, the Forests, and the public, be on other duty.

It is particularly fitting that the Government should own Pisgah Forest, for it was the first large tract of forest land in the United States to be scientifically handled. From work on the Pisgah range Mr. Gifford Pinchot, the creator of the Forest Service, and many other members of its force went into the Government's service. Pisgah pointed the way to a national forestry policy which very fittingly now guarantees the permanent maintenance of this early example.

DIFFERENT KINDS OF READERS

NOT long ago a man from Chicago and a man from New York and a man from a small town in Ohio were discussing the ever present Mexican question. At the beginning of the conversation the two city men had all the best of the conversation. At the end the townsman had the field to himself. He silenced them with superior information. The Chicagoan admitted it and set about finding out why. None of them had been to Mexico. The New Yorker knew a man who had lived there. Neither of the others knew any one who knew Mexico. Both city men read a paper or two in the morning and at least two in the afternoon as they rode back and forth to work. The town man lived within a few minutes of his work and read one paper only, but he had no journey's end to interrupt that reading. The two city men looked over fifteen or twenty magazines at home or at their clubs, read the titles of the articles, looked at the pictures, or read excerpts here and there, and once in a while read articles through, especially when traveling. The townsman subscribed to three magazines. He had time to read them and he did read them so that he remembered what was in them. Moreover, he understood that a magazine gives a taste of a subject which if the reader likes he should follow into the more extended form of

The countryman had become d in Mexico in his paper, the d *Leader*, had that interest stim- y one of his magazines, the *Metro-* ınd then he had bought, read, and three books, Flandrau's "Viva ' Fyfe's "The Real Mexico," and 's "Mexican People." When he hed these he knew infinitely more lexico than his two companions, re than most of the rest of the the United States.

are plenty of other papers and es that would have served as well Cleveland *Leader* and the *Metro-* ınd other books that would have vell as the ones the country dweller It was not so much his choice of of information as his habit of g it that gave him such an advan- r his companions. And until the was thoroughly analyzed they ite sure that in New York and they were much closer in touch ormation, better informed, and to date than any one could be who ı little town in Ohio.

ACTS ABOUT SHAKESPEARE

O Americans, Dr. Charles Wil- iam Wallace and his wife, have lone more than any one of recent find out the facts of Shakespeare's the years of patient industry in ey have examined 3,000,000 orig- uments they have found much s revealed him as a man of means ninent fame in his own day. He in the lease of the Globe Theatre ntleman;" in one document he is d in a way that seems to indicate vas the best-known of the partners lobe, "William Shakespeare and Other papers prove that he ı London with a Huguenot family he used his powers of persuasion one of their family quarrels that the courts. Still other documents e explicitly the site of his Globe — not, by the way, the site that nonly been accepted.

allace and his wife are performing service, for every authenticated record of Shakespeare adds one more touch to a picture of the world's greatest poet whose character and personality have hitherto been reconstructed from the uncertainties of an untrustworthy tradition.

THE BOY SCOUTS AFTER FOUR YEARS

THE Boy Scout movement has enlisted more than three hundred thousand boys in the four years since it was launched in this country. Every one of these boys has been interested at "the dangerous age" of adolescence and has been drawn out of doors and into the most wholesome kinds of upbuilding recreation. They become practically "gangs," but gangs under the direction of grown men who utilize the boys' instinct for adventure to turn their energy into useful or instructive paths. They learn to be trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent — for these are the twelve statutes of the Scout Law.

The boys take to it because it is all good fun. They learn to do themselves the things they have read about and admired in story books — to cook a piece of meat and a couple of potatoes in the open without ordinary utensils, to swim at least fifty yards, to know the points of the compass and how to find their way in the woods by the moss on the trees, how to resuscitate a drowning man, what to do for a snake-bite, and dozens of other things useful or interesting. Because they do these things in companies, they learn to be square with their companions and to do team-work. And, at home or away from it, they must "do one good turn a day."

Here are some of the good turns they did last year: Five hundred and forty-eight Boy Scouts from nearby cities helped the veterans at the Reunion at Gettysburg — acting as guides, erecting tents, running errands, and helping to care for the sick; Boy Scouts helped to carry household goods of flood sufferers in Ohio to high ground, and in many cities they collected funds for the relief of victims of the floods; Scouts have helped in "clean up" campaigns in Harrisburg, Pa., Buffalo

and Yonkers, N. Y., Richmond, Va., and other cities; they have aided in exterminating flies and mosquitoes in many communities; they made it possible for seventy blind people to hear Admiral Peary lecture in New York by escorting them to and from the Museum of Natural History. In many other ways they have shown the spirit of helpfulness that their organization teaches.

Altogether, the Scout movement is one of the most intelligent and beneficent agencies for directing the development of young boys that has ever been tried. Practically every city in the United States of more than four thousand inhabitants now has an organization of Scouts, and the prospect of further growth, in numbers and influence, is cheering.

THESE characters are Chinese, and they mean "Flies Kill People." They are the title of a handbill that is about seven inches wide and thirty inches long, of which thousands of copies have been printed and distributed by the governor of an interior province in China. An American doctor told this governor what some American cities have done to exterminate flies and mosquitoes, and why. The governor thereupon ordered the handbills printed and circulated, and personally paid the bills for them.

If the fly campaigns of our cleaner cities make such an impression on the interior of China there should be hope that before long our backward cities will learn that "flies kill people" unless they are prevented by the people killing the flies.

THE FARM MORTGAGE BANKERS ORGANIZE

BANKERS who specialize in the business of providing long-time credit facilities for farmers gathered from twenty states in New York City during May and organized the Farm Mortgage Bankers' Association of America.

The new association is to do for buyers of farm mortgages what the Investment Bankers' Association has been doing in the two years of its existence for investors, in its own words "to surround the offerings of its members with greater safeguards" and "to protect investors against loss through irresponsible dealers in investment securities."

The farm mortgage bankers purpose to coöperate to improve and standardize the present unsatisfactory methods of making loans on agricultural lands.

Their organization is especially timely now when there is a very widespread popular agitation for "rural credits," and when, as recent events in Congress showed, there is a danger of well meaning laws entirely unsuited to the special conditions in this country. In this situation it is gratifying that at the organization meeting of the farm mortgage bankers there was a fair and generous spirit in the discussion of ways and means to place their wide knowledge and long experience at the disposal of national and state legislatures in an endeavor to secure the enactment of such laws as will "best promote and safeguard the interests of both borrowers and lenders without inducing harmful inflation of credit for undue speculation in lands."

Some of the things which the farm mortgage bankers point to as being responsible for whatever disadvantages in borrowing the American farmer may be subject to, as compared with the European, are

1. Laws in many of the states forbidding the investment of savings and trust funds in mortgages outside those states.
2. State laws imposing burdensome taxes on all but local mortgages.
3. Lack of uniform and businesslike methods on the farms.
4. The fact that the farmer's credit has never become standardized in this country, but depends largely upon personal discrimination.
5. Neglect to educate personal investors to the merits of this fundamental type of investment.

By enlisting the active coöperation of all the responsible and experienced bankers in the field of rural finance in an undertaking to remedy these conditions, the Farm Mortgage Bankers' Association can do the whole country a very real service.

OUT INVESTING SMALL SAVINGS

LETTER of friendly criticism came to the financial department of this magazine recently from a young man in the South. He said he had been a faithful f articles in the WORLD'S WORK vestment almost from the time y began to appear regularly, and ously acknowledged that from had derived a great deal of in-n, of which he hoped some day practical use.

' said he, "has no one ever l to you that in one essential most of your discussions are e heads' of a lot of people who ambition to become investors, e resources will not permit them he kinds of securities which you quently refer to as safe and con-?

my case, for example. A little l found that, as a result of long ful saving, I had accumulated ,300, which I desired to invest in t form. When I undertook to e experiences of the scores of you have written about, in the nding one that would fit my case, red that two of your oft-repeated ons had impressed themselves mind more strongly than all the ey were (1) the admonition to , especially, to be cautious about nd (2) the admonition to in-generally, against putting the their surplus into one security, to a single class of securities.

ver, I couldn't see how it was be possible for me to reconcile injunctions in investing my own d. In one way, I could put the of diversification into practice g the stocks of different railroad, l, and public service corporations, w, of course, that the par value stocks was $100, and that there d investments — as investments ype go — for which I would not pay very large premiums. But wish to begin in that way.

"I went back to the numbers of the WORLD'S WORK in which some of the big bankers had outlined methods of investment for a young man's first thousand dollars, and read over again what they had to say. For a while, I thought a good deal about the advice that was given by one of these bankers that 'no man should assume the risks of investment until he has gathered together and laid aside in a savings bank at least $3,000 to guard against the risks of business, and to constitute his reserve fund for a rainy day.' I reasoned, however, that there was no need for me to 'play safe' to quite that extent. Finally, I came to the conclusion that I would make my rainy day reserve $300 instead of $3,000, put myself in the hands of a friendly and responsible investment banker, and ask him to select for me a good, safe $1,000 bond. Diversification would have to be left for application to whatever subsequent investments I might be able to make as additional savings accumulated.

"One evening after I had decided on this plan, I was at the public library here looking over one of the New York papers, and just by chance came across on the financial page a list headed, 'Baby Bonds — in $100 Denominations.' At once my interest was aroused. I had not supposed that bonds were issued in such small amounts. If these are good, I said to myself, they are the kind of investments I am looking for. They will enable me to average the risk on my investment from the very beginning of my experience. I am sending you the list, which I got permission to cut from the paper, and I want you to tell me about such bonds. And why haven't you discussed them before for the benefit of small investors like myself everywhere?"

We have; but perhaps not in a sufficiently prominent way. We are glad now to refer to the subject again, because it has more timeliness than ever before. The small denomination bond "movement," as it is called, has gained surprising

headway during the last year. It has, indeed, become a very important phase of the investment market in this country. It may be said, roughly, to have started a few years ago, when students of the international investment markets began to call attention to how much more difficult it was to pile up savings in America than in a country like France, where it was possible for the humblest citizen to buy the highest grade investments because they were available in denominations as low as one hundred francs, or about the equivalent of twenty dollars.

A few small denomination bonds were then known here, but to only a very limited number of investors. Perhaps the best known were the bonds of New York City, which the municipality's charter provides may be issued in registered form in denominations of $10 or any multiple thereof. There were also a few high-class railroad bonds of $100 denomination listed on the New York Stock Exchange.

But for a long time not only were corporation managers averse to increasing the supply of such investments, but bankers refrained from encouraging among their clients a demand for what supply there was. Their excuse was that it cost too much to attend to the details of their issuance and distribution — so much more than to handle bonds of the standard $1,000 unit. That is still the attitude of many corporation officers and bankers, but it is rapidly coming to be the exception rather than the rule.

The supply of bonds in units of $100 is steadily increasing to meet the growing demand for them, a large part of which, it is gratifying to know from personal testimony, represents savings of the kind which a few years ago was such a tremendous source of revenue to vendors of low denomination shares of doubtful or fraudulent character. To illustrate the variety of such bonds that are available to cautious investors of modest resources a list of the better known issues is given:

	Yield of Interest About
City of San Francisco 5's	4.50 per cent.
New York City 4's	4.20 " "
Province of Alberta, Canada 4½'s	4.63 per cent.
State of Louisiana 4½'s	4.50 " "
Chicago, Burlington & Quincy Denver Division 4's	4.00 " "
Chicago, Milwaukee & St. Paul convertible 4½'s	4.40 " "
Norfolk & Western 1st 4's	4.15 " "
Southern Pacific San Francisco Terminal 4's	4.75 " "
Virginian Railway 5's	5.00 " "
American Telephone & Telegraph convertible 4½'s	4.60 " "
Laclede Gas Light 1st 5's	5.00 " "
Portland (Ore.) Railway, Light & Power 5's	5.25 " "
Liggett & Myers debenture 5's	4.85 " "
P. Lorillard debenture 5's	4.95 " "

There are scores of others, both of the listed class, whose bigger brothers, the $1,000 bonds, enjoy active, daily markets on the Stock Exchange, and of the quiet, unlisted class, found here and there among the offerings of nearly all the responsible and progressive investment banking houses. The latter class includes a good many of rather wide popularity, representing first mortgages on improved, income-producing city real estate.

Many of these small bonds, which in every case have the selfsame underlying security as the big bonds that bear the same description, are approved investments for trustees, savings banks, insurance companies, and other highly discriminating investors. But it does not follow from that that their purchase can be urged haphazardly upon every thrifty person that has a few hundred dollars of savings. The more resourceful investors — the savings banks, for example — have means that are not at the disposal of small investors to minimize the effects of the mistakes of judgment to which investment, however carefully managed, is always subject.

The savings bank deposit is a form of investment for which, for a great many people, there is no proper substitute. However, it is frequently wise for the little saver to become both a depositor and an investor in bonds. The regular purchase of the best securities is a sort of device for semi-compulsory saving. It is an excellent habit to cultivate.

PANCHO" VILLA AT FIRST HAND

NAL IMPRESSIONS OF THE MOST PICTURESQUE AND MOST SUCCESSFUL LDIER THAT MEXICO HAS PRODUCED IN RECENT YEARS — HIS CALLOUSNESS TO BLOODSHED AND HIS SOLICITUDE FOR THE HELPLESS — A CRUDE STRATEGIST WHO WINS BATTLES

BY

JOSEPH ROGERS TAYLOR

(ASSOCIATED PRESS CORRESPONDENT WITH GENERAL VILLA DURING THE CAMPAIGN AGAINST TORREON)

WHAT sort of a man is 'Pancho' Villa?" I shall recall some of the first-hand impressions that stand out promi- in my recollection of him.

was not one of those electric ıges who radiated energy. But he he impression of possessing great s of it himself. He had the physild that so many men of action : he was of medium height, inclined hick-set, with a rather heavy sort :. (Incidentally, brown eyes, a he, and an ugly mouth, with ir- teeth, completed the picture.) ıergy he exhibited on all occasions. y he found that some soldiers who ying to get a horse into a stock car ot doing it to suit him. Grab- e halter, he fairly kicked the horse e car. He never hesitated to grab or do any other physical labor when nor suited him, in order to set the e of hard work for his men. In criticism frequently heard from his ends was that he tried to do everyıimself.

y of his mental characteristics sentially primitive. The principal e was a certain violence of temper, patience of contradiction. This companied by a tendency to a quick n to good humor. On one occasion I him a question in connection with nton case that angered him. In a he was threatening to cut off all nication with me if I mentioned bject again. And a minute later mollified and cordially invited me e lunch with him. He was easily flattered, but no one seemed to acquire a predominating influence over him. There was no favored person who could "put things through" for you. If you had anything of importance to "put through," you had to see Villa himself. He was vain to a certain extent, but his vanity never took the form of display. If anything, it took the form of a lack of display. The artillery officers, for example, had to make three efforts before they got him to accept the public presentation of a medal in the State Palace at Chihuahua.

Villa's decisions were usually quickly made and briefly expressed. He was very fond of a simple, forcible "no" or "yes," without giving any reasons whatever. It was thus rather hard to get a glimpse of his mental processes. However, the Benton case furnished an opportunity. He was explaining to certain correspondents the manner in which Benton met his death. He was evidently greatly worried by the excitement the affair had caused and anxious to hush it up as quickly as possible by placating everybody at interest. With this idea evidently in mind, he dwelt on the fact that Benton's body had been placed in one of the finest coffins that could be gotten and interred in the most exclusive cemetery in Chihuahua. It was clear that he thought that these elaborate postmortem honors should go far toward restoring good humor to everybody that was concerned — to the United States, Great Britain, and the widow!

At the same time there was no intimation of regret for the execution of Benton. Of course, on his theory that the killing was just, no regrets were called for. But

it was easy to perceive throughout the conversation that the death of a man was a very unimportant incident to "Pancho" Villa. It was bad if it caused trouble. If not, it was hardly worth talking about. It was plain that the idea of an avenging Nemesis would never have originated in his mind; also that the pangs of a troubled conscience would never disturb his calm unless accentuated by disagreeable representations from quarters capable of making those representations respected. Not that Villa impressed me as a blood-thirsty man. He didn't. Rather he impressed me as "unmoral" where matters of life and death were in question.

Villa's education is extremely limited — indeed, from the literary standpoint, almost non-existent. He can sign his name, but he can neither read nor write. Some people insist that he can read and write a little; but I have presented orders to him for signature on various occasions — orders relating to some convenience for correspondents generally, and I never saw him read one of them. He accepted the statement of what they contained, as a rule, and signed them. In some cases, he passed a document that had been presented to him in public to someone near him, with the question, "What do you think of that?" — all, of course, with the obvious intention of learning its contents. This defect in education, however, is compensated by Villa's perfect willingness to admit that his education is extremely limited. He makes no pretence of knowing what the schools can teach. On the other hand, he never boasts of his lack of early advantages.

A TEMPERATE MAN

Villa is a very temperate man. The most conspicuous thing in the caboose which he occupied during the early part of the campaign against Torreon was a box of oranges. When the tippler would take a drink, Villa eats an orange. If he drinks at all, it is very sparingly — a little wine at dinner. By the same token, he smokes very little.

But let no one get the idea that there is a touch of Puritanic severity in "Pancho" Villa. There is not. He is a Mexican with an evident fondness for most of the pleasures that appeal particularly to Mexicans. He likes bull-fighting, cock-fighting, horse-racing, and the like. Social diversions also appeal to him. While the army went forward to Torreon he stopped off for a day at Santa Rosalia to attend the marriage of a friend and to take a prominent part in the festivities. He attended numerous "veladas," mixed musical and literary entertainments, in the "Teatro de los Héroes," the principal theatre of Chihuahua, and his pleasure in the performance was evident.

HIS KINDNESS TO NEEDY WOMEN

At the gate of Villa's house, at the door to his office in the "Palacio Federal," in the waiting room at his house, there was always a crowd of women in black. They came to ask all manner of help and favors. Many were evidently in great distress. Some had lost sons and husbands in this or the previous revolution. Villa saw great numbers of them personally, and I judged that he was really anxious to do what he could to help them. I have seen him listen to the plaints of a lot of women waiting in the hall, after he had curtly refused, on the ground of lack of time, to listen to a group of officers and civilians, some of them with fairly important business to transact. In brief, Villa seemed to realize, in a way, that weakness had its claim on his strength; and the courtesy with which he treated these poor people, who would probably not have even secured an interview with many less important persons, was certainly to his credit.

Was and is Villa working for his own aggrandizement? Is he simply a selfish grafter looking mainly to the feathering of his own nest? The answer is that Villa is a Mexican, and no doubt has the average Mexican's idea as to the rights and privileges of leadership. There is certainly little about Villa to suggest a lofty disinterestedness. If he does not emerge from the present conflict with a secure financial position, under the Government or based on personal resources, there will be a very disappointed and dangerous man loose somewhere in Mexico. On the

· hand, it is not necessary to deny that, these motives of self-interest, the successful of present revolutionary als nourishes a real devotion to the that he fights for, as he understands cause.

e military critic would have small ulty in picking numerous flaws in 's generalship. His campaigns will ly be studies in the military schools. they might be studied with profit by present school of Mexican generals, ast. And they have the crowning e of having been, on the whole, sucul campaigns.

A LIKENESS TO GENERAL GRANT

lla's qualities as a general may be summed up under the heads of agiveness, doggedness, and what we are stomed to call "good hard horse sense." ricans may be startled at the comon, but there is in Villa a remote sugon of General Grant. I asked him day at Torreon, when the prospects not particularly bright, when he cted to take the town. He was on a bed, tired out with the fighting he previous night. He looked up dy and said: "I don't know *when* son will fall. All I know is that it is to fall." He had no brilliant plan in to achieve victory. There was ing Napoleonic in his attitude or his rship. He had apparently but one — to keep on hammering away at the ses, now at this point and now at in a series of night attacks until the ers gave way and his army rushed nd took the place.

lla made three notable improvements Federal methods in his campaigns. knew Federal methods well, having d under Huerta himself in the cam- against Orozco. The first improve was to cut off the immense number men camp followers that the Mexican ral army always carried along as a of commissary department. An idea e size of the female contingent may ot from the fact that the Federal that crossed to this country from ga had about one thousand women to thousand three hundred men. The abolition of this impediment gave the army greater mobility, diminished the demands for subsistence, and improved the discipline and health of the troops.

The next variation from the classical Mexican standard was shown in the preference for night attacks. Up to Villa's time Mexican armies had been accustomed to sleeping at night and doing most of their fighting in the daytime. Of course, night attacks were not wholly unknown before. With Villa, however, they practically became the rule. Juarez was taken at night, after the commander of the garrison had been skilfully deceived as to the danger by means of telegrams purporting to come from Federal officers. Gomez Palacio, in front of Torreon, was attacked three nights in succession. The principal attacks against Torreon were delivered at night. The advantages of night attacks lay, in Villa's opinion, in the moral effect on the enemy and in the greater protection afforded the attacking side. The results justified his views.

The third improvement was simple but important: an added rapidity of movement. Considering their smallness, most Mexican armies move very slowly. Villa changed all that, so far as the army under his immediate command was concerned. He might be a little slow in starting for an objective point. But once started, he moved with a rush. All his men were mounted, as a rule: there were no hordes of women and children to delay the march; every man carried a small commissary department behind his saddle; the result was that he had probably as mobile a body of men under his command as the world has ever seen. The main body of his army rode twenty-five miles and made an attack on the well-fortified town of Gomez Palacio all in the same day.

A REMARKABLE HOSPITAL SERVICE

Later, in preparation for the campaign against Torreon, he introduced a still more unusual innovation. He made remarkably elaborate preparations for caring for his wounded, equipping, for this purpose, a small hospital train, with an operating car, bunk cars, medical supplies, and a small corps of surgeons and nurses. Inciden-

tally the medical department did excellent work in administering immediate relief and preparing the wounded for shipment to points farther north, where the facilities for their housing and treatment were better.

Approximately less than a year ago Villa got together about 3,000 men, made a march, and took Torreon, which had at that time a comparatively small garrison of about 2,000 men. He then abandoned the town, returned northward, and attacked Chihuahua, the capital of the state of that name. Failing to take it, he made another rapid march northward and surprised and took Juarez, just across the river from El Paso.

"Why this abandonment of Torreon after he had taken it? Again, why did he attack Torreon first, leaving well garrisoned cities like Chihuahua and Juarez still in the rear?" I asked a member of his staff. It looked like bad generalship, like a campaign thrown away. The answer was illuminating:

"At that time General Villa was desperately in need of arms and ammunition. The border was closed to imports, and, besides, he had no money to buy them with in the United States. In brief, his only chance to get them was to take them away from the Federals. Torreon seemed to furnish fair prospects of such supplies, and he went there to get them. There was no question of strategy in the business. The strategy of the thing was, no doubt, bad. Unfortunately, the supplies were not what we had expected they would be. Several cannon were gotten, some rifles and ammunition; but nothing like what we were hoping for. However, the general exacted a contribution from the town, and that helped a little. In looking over these earlier movements, you should always remember that you are considering an army that had to keep itself supplied by defeating the enemy. All the artillery that General Villa has, for instance, was taken from the Federal forces."

After the capture of Juarez, however, Villa made no such strategic blunders. General Mercado evacuated Chihuahua and Villa moved in and took and held the town. General Mercado went to Ojinaga, and Villa followed and drove him across the border. Having thus cleared up an immense territory in the rear and arranged for its protection, he moved again on Torreon. This time he knew that, if he took it, he could hold it as a base for further operations in the direction of the Mexican capital. With this object, he had the railroad from Juarez through Chihuahua to Torreon put in fair condition. He thus established a connection by trunk line with the border and with the main source of supplies for his army.

EVERY REGIMENT FOR ITSELF

The chief criticism heard during the last siege of Torreon was of the lack of support. A regiment would start out to take a certain point — say "Cerro La Pila," the hill that protected Gomez Palacio. If it took it, by itself, well and good. But if it found itself in a critical position, where support might turn the tide in its favor, it seldom received it. Time and again the men took positions which they had to abandon because they were not properly supported. By the same token there was no reserve for use in critical moments. The entire army, with the exception of the few hundred men that guarded the supply and hospital trains and army camp at Verjel, was practically on the fighting line. Villa's whole strategy was apparently summed up in the maxim, "Be strongest at the main point of attack." He always tried to follow it by withdrawing men from other points along the line to strengthen the main attacking body.

The preparations for the campaign against Torreon imposed responsibilities for the organization and the provision of supplies that Villa had not previously been called on to meet. He met them, however, in a practical way that showed that he had talents considerably above those that are required for the command of a mere flying cavalry brigade. The men were well fed, well clothed, well armed, and, for the most part, well mounted. There was no semblance of drill, but the men were kept under fine discipline. On the whole, it is probable that Villa is to-day the best commander in Mexico.

a possible president Villa seems im-
ble. He is without general ideas
e public good, without the slightest
ite plan for the solution of social prob-
His political thinking, what little
een given to the public, is crude in the
me.
erything with Villa is concrete, per-
. He began fighting because Huerta
l Madero. He continued fighting be-
: Huerta once came near executing him
ısubordination, and he nursed the old
ge with great care. Also, because he
l the Spaniards and the entire "Cienti-
crowd. Also, because he liked to
and to lead. It is doubtful that his
:ption of the grounds of the present
ict went much deeper. Of course,
as vague ideas that his success will
the people, but in what fashion he has
probably never tried to formulate in his own mind. He has been too busy attending to his own meteoric career. He has been content to leave the formulation of programmes to General Carranza.

Villa, as president, would surround himself with a crowd of personal henchmen. There would be, no doubt, some quite respectable looking figures in the group. There would also be some far from respectable ones, to judge by at least one of his closest friends, the most redoubtable desperado and killer in all Chihuahua. He would listen to advice when it suited him. When it did not his advisers would oppose him at their peril. These are, of course, mere inferences from observation. But surely there is no better way to judge the future than by referring to the very recent past of the man.

VILLA

E BANDIT CHIEFTAIN WHO HAS RISEN TO BE THE MOST POWERFUL MAN IN MEXICO — HOW HE HOLDS THE ALLEGIANCE OF RUFFIANS AND EDUCATED LEADERS ALIKE — STORIES OF HIS CAREER AS COMMANDER OF THE CONSTITUTIONALIST ARMY

BY

GEORGE MARVIN

LL his men call him "Pancho," the Spanish nickname for Francisco. And as such he will be known when this troubled page of Mexican ry is written. But the birthright : his parents gave him in the town of Nieves, in the State of Durango, y-seven years ago, was Doroteo ınzo. Everything is in a name. That :n hundred armed men in Northern co call Villa "Pancho" means a lot. ves you one intimation of his power, es in a word one reason for his success. ıcho" Villa — not Doroteo Arranzo, General Villa, nor even Francisco — took Torreon and Juarez, and in yes of the world ranged himself along- Huerta as the other man in Mexico. therto in Mexico, as in other coun- when a man has risen from obscurity through the troubled waters of revolution to the surface of public attention, he has generally changed his manners if not his morals. Other peons who have won seats of authority sit down in them and have their boots blackened and their leggins laced by peons who are still common or garden. Pancho Villa takes his boots and leggins out into the street in front of his quarters, sits down on a curbstone, and puts them on himself. The authority he exercises is not artificial, a thing of titles and shoulder straps, or anything else that can be rubbed off at close quarters. It is the result of several ingredients, one of the strongest of which is the ability and the shrewdness of this bandit in keeping on being to an army what he was to a gang of other bandits: their chief, their leader, stronger than they but their friend, one of them — "Pancho" still.

To discuss whether or not Francisco Villa is a good or a bad man is a sheer waste of time. It is just as much a waste of time to qualify his military and administrative performances by a recitation of his moral crimes. Villa is, according to our standards, a perfectly bad man. But our standards are not those of the mountains of Chihuahua, not those of Northern Mexico. You miss Villa if you do not understand that he achieved and held his leadership not in spite of what to us are his moral defects, but actually because of them, or rather because of the traits of personality of which they are indicative. Villa's sins of commission are many; if we are to believe credible reports he has boisterously run the gamut of the Decalogue. But his sins of omission are few. He is a criminal but he is much more besides. Not by crimes alone could he have become the strongest individual force in Mexico; but it is useful to remember that the fighters who take his orders know that their wages have been robbed and tortured out of foreigners or other Mexicans, and think none the less of him because of such methods of filling his exchequer or because he has violated women and has shot straight and many times to kill.

It is unconvincing to make general statements about a man two thousand miles away. Accordingly, for the sake of greater emphasis, the following specific statements, read into the *Congressional Record* by Senator Lodge on May 5th, may here be appropriately introduced:

When Ciudad Juarez was taken from the Federals in May, 1911, he [Villa] killed Señor Ignacio Gomez Oyola, a man of over sixty years of age, under the following circumstances: Having sent for him, Villa asked whether he had any arms in his house, and on his saying he had not, Villa, "who was seated on a table," drew his revolver and shot him dead. After rifling the corpse of money and valuables it was thrown into the street.

After the triumph of the revolution, Villa, in November, 1911, obtained a monopoly from the then governor of Chihuahua for the sale of meat in the city of Chihuahua, which he procured by stealing cattle from the neighboring farms. Suspecting one of his subordinates, Cristobal Juarez, of stealing on his *own account, he killed him* one night in the latter part of November in the Calle de la Libertad.

In the early part of May, 1913, Villa, with 75 men, assaulted a train at Baeza, State of Chihuahua, that was carrying bars of gold and silver valued at $50,000, killing the crew and several passengers, including Messrs. Caravantes and a Señor Isaac Herrero, of Ciudad Guerrero.

Toward the end of the month Villa's band took the town of Santa Rosalia, Chihuahua, shooting all prisoners and treating the principal officers with terrible cruelty. Colonel Pueblecita was shot and his body dragged along the streets of the town. The commercial houses of many others were totally sacked. Many private persons were murdered, one of the worst cases being that of a Spaniard, Señor Montilla, cashier of the house of Sordo y Blanco, who was shot over the head of his wife, who tried to defend him. Villa personally kicked her in the face as she lay on the dead body of her husband. He also, himself, killed a Señor Ramos, secretary of the court of first instance.

He arrested more than 20 of the principal people of Santa Rosalia, torturing them and taking them out to be shot, until he obtained from them $35,000, which were collected by several people in order to save their lives. One of these was a lady, Señora Maria B. Coviero, who was herself also tortured until the sum Villa wanted was forthcoming.

In July, 1913, Villa took Casas Grandes, Chihuahua, and shot more than 80 noncombatants, violating several young girls, amongst them two young ladies named Castillo.

He attacked and took the town of San Andres, which was held by the Federals, in September, 1913, shooting many peaceable residents and more than 150 prisoners, many of these being women and children. In shooting these people, in order to economize cartridges, he placed one behind the other up to five at one time, very few of them being killed outright. The bodies of the dead and wounded were then soaked with petroleum and thrown into bonfires prepared for the purpose. The prisoners were forced themselves to make the bonfire and cover with petroleum the rest of the victims.

These are merely a few of many similar details. Presumably, since dates and names are exactly used in each case, the facts may be verified.

There is no doubt, then, that Villa is, according to our code, an entirely bad man. If that were all, he would not be worth

:ring here as a subject for bio-
:al study. But immorality and
: are not incompatible, and it seems
' beyond question that Villa is a
man and a born leader. He is not
of bullets. In most of his big fights
sition has generally been slightly
rear of the centre of his firing line,
/hich point he watches and directs
:n in front of him much as a good
rback generals the combined efforts
orwards. Crouching or lying on the
he calls out to his command, often
sing individuals by name. His
ge is intense, profane as emotional
Spanish always is, even obscene.
pearance has been described at these
is tigerish, malevolent to a degree,
:rating on all within eyeshot of him
ispiration.

ously enough, with all his fearless-
ider fire, and the bravado with which
accomplished robberies and murders
ng personal danger, he is constantly
ous and apprehensive of being taken
res. In camp he will rarely eat food
specially prepared for him, but in-
will go wandering about among his
s and, stopping here and there, make
out of the rations they are cooking
mselves. Even tobacco he suspects,
ling on a casual cigarette or cigar
'rom any soldier he may meet.

ee Villa strolling thus on foot about
nps or riding along a line of march
uld never suspect that part of his
pirit of comradeship is in reality a
ous caution. His men see only that
till one of themselves, eating their
moking their tobacco. In his early
years he was a hard drinker, but
' responsibilities have made him
bstemious, since he is unwilling to
is alertness even temporarily, afraid
stupor which alcoholism may bring.
:ral Garibaldi, Madero's Italian
f staff, tells of an incident which
Villa's cat-like alertness. Madero
ght sent an officer into a room, ad-
that in which they were both sitting,
Villa, apparently exhausted by con-
s fighting, lay sprawled out on the
oring in the darkness. No sooner
is man set foot across the threshold
than Villa in one movement sprang to his feet, a revolver in each hand covering the intruder — from sound sleep to alert, hostile wakefulness in one flash, as immediate as the instinctive strike of a coiled snake stepped on unawares.

Though he shares their rations and their tobacco, and chaffs with them all day long, he very rarely bivouacs near his men. At night he will ride away with Raoul Madero and two or three trusted companions to reappear at daybreak from some unseen, unknown encampment.

Living thus always in an attitude of suspicion might be weakness in another man. It is not a weakness in Villa because everyone knows that he is a dead shot with the gun that bulges out the hip of his civilian clothes or hangs in an unbuttoned holster from his uniform belt; that he will fight at the drop of a hat; that he is merciless and cruel; and that he never forgets. Of these traits he gives constantly fresh evidences and his fame exaggerates facts that are impressive enough in themselves. The same men who affectionately call him "Pancho" and who will fight with him and for him loyally enough are mortally afraid of him. He is the most popular and yet the most feared man in Chihuahua — "the only unknifeable Mexican." Just across our borders the leader of a neighboring people is generally respected for his efficient criminality.

But the great tribute to personality lies in the control that this illiterate superbandit maintains not only over criminals, like Fierro and Borunda, even grosser than himself, but equally over educated men like Maclovia Herrera, Generals Benavides and Angeles, and Dr. Andres Villareal, his chief medical officer.

Fierro, in addition to being a sort of lord high executioner, was in charge of the rail transportation of Villa's army until Eusebio Calzadao took his place at the end of March. One of his water and provision trains was thirty-five minutes late after a hard night's fighting at Torreon. Villa, sleepless, dusty, and hot, sent for him and gave him what might correspond to a reprimand in our service. His screams of wild rage could be heard across the camp, terrifying, maniacal, as he shook both fists

in his subordinate's face. Fierro, a murderer by profession, walked away, green with passion, without lifting a hand against his chief, but half an hour later, when the delayed train pulled in to its siding, cut short the conductor's explanation by shooting him dead.

This is the man who, it is said on reliable authority, walked down the aisles of cots in an improvised hospital at Chihuahua, and killed eighty-two wounded federals as they lay helplessly suffering. Pulling away the blankets from struggling, or cowering, half conscious wretches, until he recognized some badge or uniform, he silenced their cries and curses forever with a shot through the head or heart.

Over this man and many other Mexicans like him Villa has complete control. But Angeles is of a different type, a trained soldier who was educated in the military school of Chapultepec. Herrera, another general of trained and proved military ability, and General Chao, an ex-schoolmaster, served under him loyally until they were dismissed in May for maladministration of the civil government of Chihuahua. Dr. Villareal, who is a graduate of Johns Hopkins, has organized with Villa's money a more thoroughly equipped hospital train than any we have at present in our Army. In his relations with these men and others on the Constitutionalist side, Villa shows traits which lift him at once out of the ruck of men of his type. With these men, so far as mental equipment goes, he must be always at a disadvantage. No mere championship in criminality could hold some of his able subordinates together or even keep them individually from turning against him. There must be more, much more. With all his impulsiveness and suspicion he keeps an open mind and is quick to adopt advice or suggestions. There is no bigotry about this hardened character.

The most picturesque example of his adaptability occurred last February some time after the taking of Juarez. A meeting was then arranged between Villa and General Hugh Scott, who was at that time in command of the American troops on the northern border of Mexico, with headquarters at El Paso. The meeting took place at 8 o'clock at night in the middle of the international bridge over the Rio Grande which unites El Paso with Juarez. General Scott has lived most of his life in the West. He has fought Indians and treated with Indians. He understands Indian nature and human nature, and how to deal simply man to man. He and Villa took a liking to each other from the start. Villa, who owns a dozen or more cars of the best makes, sent his 1914 Packard across the river to the Paso Del Norte Hotel for the General, driving out himself in another car to the middle of the bridge. He had on a plain suit of badly-fitting civilian clothes, a broad-brimmed felt hat, and heavy riding boots worn inside his trouser legs. The man General Scott met face to face was deferential, smiling, friendly, rather shorter than he had expected, about five feet ten inches in height, built like an erect, soft-handed gorilla and moving with the slouchy grace of a stevedore. As Villa speaks only a few words of English, their conversation was entirely in Spanish. It is a striking picture: the grizzled Indian fighter and the Mexican bandit, their faces lit by the bridge lamps and the reflected glare of their motor cars' headlights.

This meeting was important for two reasons, both of which still further indicate the character of the Mexican leader. Up to this time, shortly before the series of attacks on Torreon began, Villa had been in the habit of killing his prisoners and the enemy's wounded in every engagement. General Scott, ignoring the humanitarian side of the case, pointed out to Villa the mistake in policy he was making in deliberately alienating the sympathy of every civilized nation in the world, and thus prejudicing a possible foreign support which might one day be very useful to him. After the taking of Torreon, where General Velasco had held out against repeated attacks with an exasperating stubbornness, there were very few instances of the killing of wounded, and two hundred and fifty Federals, captured under arms, were sent north in custody without indignity or violence. During the whole of this bitter revolution, that is the first instance on the Rebel side of humanitarian principles prevailing. In support of his advice General

"PANCHO" VILLA

A BORN LEADER OF MEN WHO GREW UP OUTSIDE THE LAW IN A COUNTRY WHERE LIFE IS CHEAP

Scott had read to Villa extracts from the "Rules of Land Warfare," by Colonel J. E. Edmonds, of the British Army. Villa afterward sent a messenger for a copy of this book, asking that it might be lent to him until he could have a translation made into Spanish for distribution among his officers. Just the other day a bundle of "ponchos," Mexican woven blankets of the finest texture, arrived in Washington for General Scott, who is now Assistant Chief of Staff at the War Department. They were a present from Pancho Villa. Villa liked and respected General Scott, and General Scott was favorably impressed by Villa's frankness. What Kipling has

PICTURES OF GENERAL VILLA THAT SUGGEST THE

to say about "East is East and West is West and never the twain shall meet" is almost equally true if you substitute South and North for East and West, especially if one be a Latin-American and the other an Anglo-American:

But there is neither North nor South, Border, nor Breed, nor Birth,
When two strong men stand face to face, tho' they come from the ends of the earth!

In this case the meeting had another result which may have directly affected the present relations of the two nations.

After Admiral Fletcher had occupied Vera Cruz on the 21st of April, there followed a period of uncertainty as to what

ROUGH-AND-READY QUALITY OF HIS LEADERSHIP

the Constitutionalists would do. Carranza's first message was distinctly hostile in spirit, and the War Department at Washington lived in daily expectation of some move on the Texan border which, despite President Wilson's clear restriction of belligerency to the Huerta Administration, might involve the United States in a general war against all Mexico. While things were in this strained state a telegram came on the 24th of April to General Scott from Pancho Villa at Juarez. It was written in Spanish and the first sentence saved the situation. "No hay cuidado," the brigand wired to his friend, the General, "Don't worry."

And that one sentence gives another sidelight on the personality of this Mexican

FIERRO AND VILLA

FIERRO IS GENERALLY CHARGED WITH BEING THE MAN WHO SHOT WILLIAM S. BENTON, THE BRITISH SUBJECT WHO WAS KILLED AFTER HE HAD QUARRELED WITH VILLA

chief. Whatever may be his ultimate plans or self-interested ambitions is guesswork, but what we do know is that if Villa had been looking for trouble in that critical week, April 21st to 28th, he could have found it by the turn of his hand. Instead, he was the quieting, pacific influence at that moment. El Paso was panicky, with batteries taking up positions commanding the international bridge and raking the streets, and with infantry from Fort Bliss on the alert. Across the bridge Villa took no corresponding precautions. He openly ridiculed the idea of hostilities. Mrs. Villa packed up her trunks in El Paso and motored over the bridge to Juarez, but nothing else happened of any importance. This brigand, who until then had been regarded as a wild child of barbaric impulse, was, as a matter of record, a good deal more calm and mature in the crisis than some peace lovers north of the border. With one hand he kept a smouldering fire from springing into flame at the most inflammable point along the Rio Grande, while he reached out the other reassuringly to General Scott in Washington. Whether or not in good faith, no one can say certainly now. At all events he kept the peace then just as emphatically as he had broken it countless times before.

Villa, then, has a remarkable hold on the political situation in North Mexico, on his men, on himself. A criminal, he nevertheless holds the respect, the friendship, of better men than he. An illiterate peon, he

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lla began his ac-
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oo, and seven
Putting both
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pends money lav-
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money in their
ets, plenty of it.
widow of a soldier
d in battle comes
m sobbing.
Here, give the
cita a hundred
s for the chil-
," he calls out,
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s the woman
, drying her eyes,
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ty.
e fall of Juarez,
hihuahua, and of
reon probably
ed their captor
ons of dollars in
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counting all he
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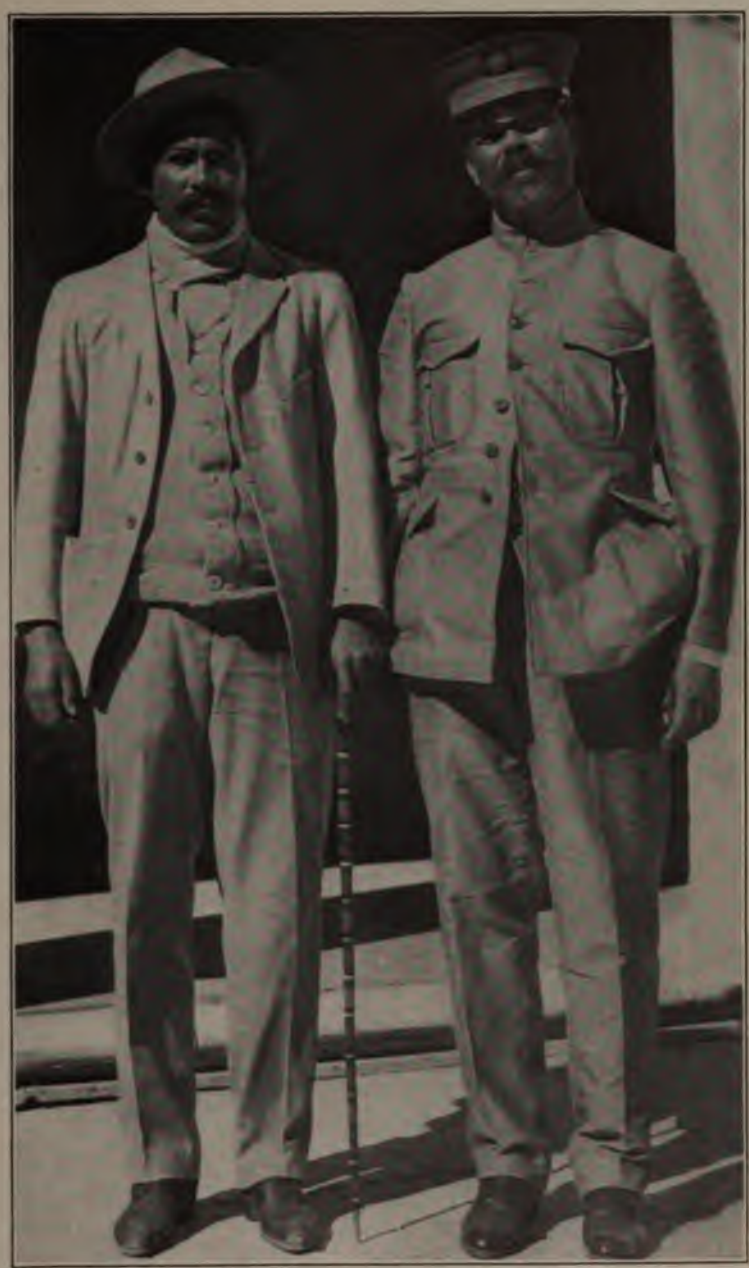
ndas, small vil-
, and loans north
e line. He knows how best to dis-
te both supplies and money. Early
e game he set aside a fortune for him-
Now he spends freely for the cause.
rranza's methods are very different,
e is trying to start a government on



FAUSTRO BORUNDA AND VILLA

BORUNDA, SINGLE-HANDED, EXECUTED EIGHTY-FIVE PRISONERS AT SAN ANDRES. THE SAVAGE CHARACTER OF VILLA'S SURROUNDINGS AND LIFE LEADS HIM TO ACCEPT SUCH MEN AS A MATTER OF COURSE

sound lines, not merely to keep an army loyal and keen for fighting. He goes more cautiously, laying aside funds, scheming for to-morrows. Undoubtedly, the older, educated man knows exactly the value of his peon general. An American who was

BRIGADIER-GENERAL HUGH L. SCOTT

ASSISTANT CHIEF OF STAFF OF THE UNITED STATES ARMY, WHO, WHILE HE WAS IN COMMAND OF THE BORDER PATROL IN TEXAS, CONVINCED VILLA THAT HE MUST OBSERVE THE RULES OF *CIVILIZED* WARFARE

at a Constitutionalist conference eemed clear to him that Carranza's superiority was evidently taken nted on both sides. Villa apparccepted the situation at its real 'elt his disadvantage among the ados," but, accepting it, was defernd even respectful. This idea of

GENERAL SCOTT IN SERVICE UNIFORM

SENT ONE OF HIS MANY AUTOMOBILES INTO EL PASO TO BRING GENERAL SCOTT TO THE MIDDLE OF NATIONAL BRIDGE OVER THE RIO GRANDE FOR A NIGHT CONFERENCE, AT WHICH HE FIRST LEARNED WAS INJURING THE CONSTITUTIONALIST CAUSE BY HIS SLAUGHTER OF FEDERAL PRISONERS

ch-discussed relationship existing the two rebel leaders is borne out eport of a speech that Villa made quet in the city of Chihuahua on the May 2nd.

speech was considered so significant complete an answer to the rumors on in the rebel camp that it was hed in full in Spanish to the Conalist headquarters in New York ranza's foreign minister, and was in the New York *World* of May 4th. s Spanish vocabulary is limited, simplicity of his language does ve his thoughts beclouded as sometimes is concealed in the distinctions of the Spanish tongue. peech he said:

of our enemies — perhaps only enemies — say they have no confidence in my being a loyal soldier of my country. They think that there is discord between us.

Although I am not a cultured man, I have a deep interest in the welfare and progress of my country and in seeing that all those who may be under my commands are truly obedient to their superior officers and know how to fulfil their duties. And I, who set before them these teachings, am the first to acknowledge my absolute obedience to the First Chief, to my chief, so that no civilized nation can in any way thus reproach us.

Thus Villa disarms enmity or jealousy in those intellectually stronger than himself, and is capable of stamping opposition out of his own kind. He has been able to get at plenty of money and to use it where it would do the most good. His personality, giving force to his intelligent methods, has enabled him to become a particular voice or star of peon revolt and agrarian discontent. But Villa owes his success also in great measure to success. All the rest of his equipment would have fallen flat had he not proved himself, if not a military genius, certainly an exceedingly able general of the kind of troops at his command.

A proof of his ability as a strategist

FEDERAL PRISONERS AT TORREON
SAVED BY GENERAL SCOTT'S TALK WITH VILLA

was afforded in the second taking of Juarez. Villa, who was with his main command, south of the city of Chihuahua and attacking that place, leaving part of his force there, by a wide détour interrupted the railroad line north of Chihuahua and captured a Federal troop train on its way south from Juarez. Seizing the telegraph station, he had his own operator telegraph back the news of an accident and asked for instructions. The Federal commander at once ordered the train to return to

THE CHIEF OF VILLA'S MEDICAL CORPS
DR. ANDRES VILLAREAL (CENTRAL FIGURE), A GRADUATE OF JOHNS HOPKINS UNIVERSITY, WHO HAS ORGANIZED THE BEST FIELD MEDICAL SERVICE EVER SEEN IN MEXICO

LEADERS OF THE CONSTITUTIONALISTS

FRONT ROW, FROM LEFT TO RIGHT: LOUIS HERRERA, JULIO MADERO, TRINIDAD RODRIGUEZ, TREVIÑO, MANUEL CHAO (FORMERLY GOVERNOR OF THE STATE OF CHIHUAHUA), VENUSTIANO CARRANZA ("FIRST CHIEF" OF THE CONSTITUTIONALIST ARMY), AND MACLOVIA HERRERA

Juarez for repairs, and Villa, obeying these orders, filled the train full of his own men and, rolling unopposed into the station that night, took the city by surprise.

Torreon was considered, and in fact is, an impregnable position against an army without heavy guns. In Mexico City, despite daily telegraphic reports from Europe and the United States, no one believed that the city had fallen for more than a week after General Velasco had been driven out of his last trenches. Villa took Torreon with field artillery and infantry in a series of night attacks that were admirably planned and savagely fought out.

RAOUL MADERO AND GENERAL BENAVIDES

OFFICERS OF THE CONSTITUTIONALIST ARMY AND FRIENDS OF VILLA, WHO HAS A HOLD OVER EDUCATED MEN AS WELL AS OVER RUFFIANS OF THE FIERRO TYPE

In his campaign around Torreon, as well as frequently before that time, Villa relied principally on night attacks. He would keep his enemy worried all day long by a severe artillery fire and then when he had either driven them from their advanced positions or discovered their entire arrangement he would, after dark, order his infantry forward in a series of charges. At these times his soldiers, varying the signal from night to night, kept in touch with one another by some preconcerted sign such as turning up their hats on different sides, leaving them off entirely, or rolling up their sleeves. Having more men than the

GENERAL BENAVIDES'S TROOP TRAIN

LEAVING CHIHUAHUA. VILLA GREATLY STRENGTHENED THE CONSTITUTIONALIST FORCES BY ELIMINATING THE WOMEN CAMP FOLLOWERS THAT HAVE ALWAYS BEEN THE COMMISSARIAT OF MEXICAN ARMIES, BUT THAT HAVE ALSO HAMPERED THE TROOPS

Federals, Villa simply wore them out by these tactics.

Within the last few months this rebel army has been organized and equipped as troops have never been before in the history of Mexico. Villa's men at Torreon were clothed with modern uniforms, new underclothes, socks, and shoes. They would have compared very favorably with a European division. Their fighting under Villa's leadership has long been effective against any body of Federals to whom they were opposed; the remarkable recent development attributable to Villa is the organization of his supply train and hospital corps. In these matters he has, of course, accepted the advice of those under him. Any military transportation which can move eight thousand cavalry 250 miles with their supplies and equipment within three days' time on a single-track railroad is first class. Calzado did exactly that thing in the quick advance from Chihuahua to Gomez Palacio. Dur-

A CONSTITUTIONALIST BATTERY SHELLING SANTA BARBARA

MANY OF THE ARTILLERYMEN IN VILLA'S ARMY ARE AMERICANS

ing the battle he kept thirty-five trains in operation, and so complete was his management that only one mishap occurred, in the case of an engine which was caught between stations and "died" before it could get to a water tank.

The sanitary brigade, under the command of Col. Andres Villareal, was an even more noteworthy advance in Mexican development. Dr. Villareal's hospital train was the most complete railroad hospital ever equipped by Mexicans, or probably by any one else. In the engagements around Torreon fourteen hundred wounded men were taken care of comfortably and given first aid in an enameled operating car equipped as completely as in a stationary hospital. Attached to this train were automobiles fitted with appliances for swinging stretchers, which did admirable work under fire in bringing wounded in from the field.

If there is one criticism to make of the organization of Villa's army, it is in his

GENERAL RODRIGUEZ'S TROOP TRAIN

LEAVING JIMENEZ. AN IMPORTANT PART OF VILLA'S STRATEGY HAS BEEN TO MAINTAIN RAILROAD COMMUNICATION BEHIND HIM AS HE HAS ADVANCED, BOTH AS A MEANS OF TRANSPORTATION OF SUPPLIES AND REINFORCEMENTS AND AS AN AVENUE OF RETREAT

A TRAINLOAD OF VILLA'S ARTILLERY AT CHIHUAHUA

PRACTICALLY ALL THE FIELD GUNS THAT VILLA HAS WERE CAPTURED FROM THE FEDERALS

MRS. VILLA (UNDER THE X) AT JUAREZ

almost complete dependence for water, supplies, and ammunition upon the railroad. Neither he nor any other Mexican commander has yet developed an adequate system of carrying supplies except by railroad train.

"Pancho" Villa is the most important force in Mexico. Here is a man with an efficient army, of proved ability to direct it, voicing the fundamental protest of the great mass of Mexicans against the old order. Villa is not handicapped by a Supreme Court or a Constitution. No acts of his are contingent upon appropriations. It is all Villa. What he wants to do he does; it is only a question of wanting right.

VILLA IN A HAPPY MOOD

Is this courageous, brutal captain a patriot? Is there anything in him left which might be called a soul? More than to the hands of any of his fellow countrymen the future relations of Mexico with the great Nation which is struggling so patiently to help it are committed to his keeping.

TRAINING NEW LEADERS FOR THE INDUSTRIAL SOUTH

HAT ONE SMALL SCHOOL IS DOING FOR AN ASPIRING POPULATION OF HALF A MILLION NATIVE AMERICANS, LARGELY ILLITERATE, WHO ARE JUST BEGINNING TO REALIZE THEIR STRENGTH

BY

WALTER A. DYER

THIS is the story of a horde that swept down from the hills of the South, and of a man who caught a vision of their great need.

Twenty-five years ago the industrial uth rubbed its eyes, stretched its arms, d arose in the strength of a new awakeng. In 1888 the Spartan Mills were built at Spartanburg, S. C. Presently another cotton mill raised its tall, smoke-belching stacks to the north, and another to the south. Then, all the way from Richmond to Birmingham, they began to spring up like mushrooms. Cotton was king — no longer the bale, but yarn and thread and woven cloth.

For fifteen years the work of building

REV. D. E. CAMAK

WHO ORIGINATED THE PLAN BY WHICH NEARLY TWO HUNDRED YOUNG MEN AND WOMEN IN SOUTHERN TTON MILLS HAVE HAD AN OPPORTUNITY TO COMBINE SELF-SUPPORT WITH AN OPPORTUNITY TO GAIN AN UCATION THAT WILL FIT THEM TO BECOME LEADERS IN THEIR COMMUNITIES

THE NEW BUILDING OF THE SCHOOL

THAT WAS PAID FOR BY SUBSCRIPTIONS OF THE MILL OWNERS AND BUSINESS MEN AND THAT IS EVIDENCE OF THE VALUE OF THE SCHOOL TO THE STUDENTS AND TO THE COMMUNITY

went steadily and rapidly on before the builders paused to take breath, so that there is now scarcely a spot along the Southern Railway from Greensboro to the Georgian line that is out of sight of cotton mill smoke.

THE FIRST SCHOOLHOUSE

IN WHICH MR. CAMAK TAUGHT HIS CLASSES OF COTTON MILL WORKERS DURING THE WINTER IN WHICH THE SCHOOL WAS FOUNDED

the first these Southern manu- were opposed to foreign labor. 'hey sent, for their labor, back own teeming hills, where dwelt s of pure-bred whites of English ch-Irish lineage. The call went the foothills of the Blue Ridge, uth Carolinian sand hills, to the ian plantations, to the mountains Carolina. It went to men and oys and girls, living in shacks and new social problems. Since 1890 a full half million of these people have come to dwell between Greensboro and Atlanta. Spartanburg County alone received 35,000 of them.

They were not degenerates, these people, not feudists. They were merely those unsuccessful ones who had been cast up on the farms and the mountains by the tide of industrial advancement. They come from fine old stock; there is scarcely

"CAMAK HALL"

'PORARY DINING ROOM OF THE CLASSES IN MR. CAMAK'S SCHOOL FOR COTTON MILL WORKERS

ns of clay-plastered logs and loors, in many of which a flaring t was the only illumination of evening and where books were . It went to little rented farms, vorn acres produced scarcely pay the storekeeper. It offered vages, money for tobacco and nd gay attire; it offered comhouses to live in, and the comip of human kind.

answered the call, these folk of ind the farms. By the thousands ne, pouring into the little mill and creating a new population a foreign name in the entire census of them. They are the product of devastating war and the upheaval of reconstruction. They are intensely religious and, as a whole, moral. They are removed by only two or three generations from ante-bellum culture. Their ancestors fought with Morgan at Cowpens. But they have suffered from isolation, poverty, and lack of opportunity. Fifty per cent. of those between the ages of fifteen and thirty are absolutely illiterate — can neither read nor write. It is simply a case of arrested development.

In the North people are talking of a "back-to-the-land" movement to relieve

THE BETTER QUARTERS OF THE SECOND YEAR

IN THESE TWO HOUSES, AND ANOTHER HOUSE THAT DOES NOT SHOW IN THE PICTURE, ABOUT THIRTY YOUNG MEN AND WOMEN LIVED, ATE, AND STUDIED DURING THE SECOND TERM OF THE SCHOOL

the congestion of the industrial centres. In the Piedmont-Carolina district salvation lies in the back-to-the-town movement. These people have moved down from their degradation and isolation to a land of schools and teaching and better homes. Already the children of the new generation are going to school, and will do so more generally as soon as there are better child labor and compulsory education laws, and the prejudices of caste have been broken down. But what of the half million who must work, who are too old to go to the public schools, and yet many of whom are still young and are developing a class consciousness fraught with mighty power for good or evil? They are clannish, yet easily led. Already demagogues have begun to use them for political ends. It was they who elected Blease. What will happen when the labor agitator gets their collective ear?

Fifteen years ago a vision of the future was vouchsafed to Dr. H. N. Snyder, president of Wofford College, an institution which for many years has stood for human service. Dr. Snyder preached the needs of the mill people, and his words went straight to the heart of at least one young student and tarried there.

D. E. Camak was studying for the ministry, and before he graduated from Wofford in 1903 he had dedicated his life to the service of the mill people. Immediately after his graduation he asked to be sent to a pastorate in a cotton mill community. Here he studied his people at first hand and discovered the need and thirst of the young people for education. During the following eight years he held several pastorates in the Methodist Church, but the idea of mission work never left him, and in 1910 he again asked for a pastorate in a mill village. He was sent to a little church near the Spartan Mills, and there he ministered to the people for a year while opening the way for a broader service.

During one of his pastorates Mr. Camak found a young man reading a book beside his loom. Tom Carter was born on a foothill farm in Union County, where

his mother had taught him his letters from the meagre texts that such a farm commanded. At the age of six he went to work in a cotton mill as a doffer boy, and until he was twenty he had received only three months of schooling. Nevertheless he had contrived to teach himself to read laboriously and had acquired, unassisted, a sort of elementary education, studying at night and beside his loom. Mr. Camak took Tom in hand and taught him at night, and it was while engaged in this occupation that the idea of a school for adult mill operatives came to him. He confided his vision to Carter and the two pledged themselves to the task of realizing it.

In two years and a half Tom Carter was prepared for college, managing to attend high school by working in the mill part of the time. Then he entered Wofford, spending his vacations in the mill. During his junior and senior years he did six hours of newspaper work daily, and graduated with distinction, receiving a medal for the best essay in his class. He at once received an offer of a position at $85 a month, but he only smiled.

"I have another work to do," said he. "I will stick by Mr. Camak."

Of such fibre are these mill boys made.

THE STORY OF JONES

Another story, to show the stuff that is in them: One spring Dr. Snyder found himself without a secretary. He discovered a student in college named Jones who had mastered stenography and typewriting, and Dr. Snyder engaged him for the rest of the college term and the summer. One day it came out that Jones was a hill boy and had worked in the mills. Dr. Snyder questioned him and discovered that until he was nineteen years old Jones could neither read nor write. But he longed to learn, and a school teacher took an interest in him and taught him at night. In three years he was prepared for college, and four years later he graduated with honor.

On Commencement Day Jones brought a little old lady around to see Dr. Snyder. She was his mother. Jones had not become educated "away from his folks," and his greatest desire now was to educate his two sisters. He wanted to work among the mill people, but he felt that his first duty was toward his family. So he started out in search of a career. To-day he is head of the commercial department of the city schools of Columbia, S. C., and is studying for his M. A. degree at the University of South Carolina.

The constant association with young people like these stirred Mr. Camak to action. His study of the situation had convinced him of two things — that there were plenty of young men and women able and eager to learn, and that the greatest need of the mill people was for leaders among themselves. It was his object to promote this leadership through education, and he knew he could find these embryonic leaders among the young men and women who, because of lack of opportunity, had been denied even elementary education, but who, nevertheless, are the heroic spirits of a struggling segment of a great race, and many of whom, by the very difficulties of their living, have developed some of its sterner characteristics. In the effort to train the practical men who should do the thinking for the great cotton mill population, he concluded that the best method would be to equip them to hold positions of influence in the mills as overseers and superintendents. Hence grew the idea of a combination trade and elementary school with the prime purpose of developing human leadership. And, of course, some system must be devised whereby the students could work while pursuing their studies, for they all had their living to earn.

ALTERNATING WORK AND STUDY

Now Mr. Camak knew — and in this the mill owners agreed with him — that the work would not be successful if started on a basis of charity or paternalism. The mill people are clannish and proud. A shadow of partizan control would frustrate the object. But they are fundamentally a religious people, being almost entirely ardent Baptists and Methodists. The point of contact is on the religious side. Mr. Camak accordingly appealed to the Board of Missions of the South Carolina Conference of the Methodist Episcopal

Church South, which agreed to relieve him of his pastorate and continue his salary as a home missionary. He had found a number of young men and women in the cotton mills who were making good wages which could be used in getting for themselves something besides the food, clothing, and other things for which they were spending their money. So he evolved the idea of alternating a week of work with a week of study by putting two operatives at work on the same machine. The mill owners readily agreed to this, for they were heartily in sympathy with the project.

From these same mill owners he obtained, free of rent, an old house next to his church. With $100 borrowed capital and a little home-made furniture Mr. Camak opened his school on September 5, 1911, and named it the Textile Industrial Institute.

It was to be a boarding school, but on the day of opening, and for weeks thereafter, there was in attendance only one student — a married man. Personal friends of Mr. Camak, thinking the venture had failed, tried to persuade him to give it up, but he persisted, and the first winter's work saw an enrollment of forty students. The average age of these was twenty-two, and their average entrance advancement the fifth grade. Some, at the age of twenty-four and twenty-five, could neither read nor write. The teaching was done by Mr. Camak and one assistant — Tom Carter.

THE GROWTH OF THE SCHOOL

In November, 1911, the school was formally organized with a board of trustees, under the auspices of the Methodist Conference.

During the first year's work the school outgrew its quarters, and larger quarters, consisting of three houses, were secured, one of them lent by the Good Samaritan Hospital and the other two rented. In the fall of 1912, the enrollment had reached fifty-six young men and women, and increased to seventy during the winter.

Last fall the school was obliged to give up these quarters, owing to the needs of the hospital, and the best they could get were two operatives' cottages near the Saxon Mills. One of these was used as a dormitory for the boys and the other for the girls. Between them was erected a temporary building (which will later be moved and used by the school as a cow barn) as a dining hall and school room. It was dubbed "the camp" and "Camak Hall." Here, all through the severe winter, the students lived and studied without complaint.

The success of the school, and the earnestness of both teachers and students, attracted the support of the mill owners and the business men of Spartanburg. One of the school's staunchest friends is Mr. John A. Law, president of the Saxon and Chesnee mills and of the Central National Bank, a native of Spartanburg, whose genuine concern for the welfare of his people has led him to take a prominent part in several improvement activities and to make his home in one of the mill villages. He is vitally interested in the plan to raise up local leaders against the day of industrial agitation. "When conditions become such," he has said, "that I must bring pressure to bear upon my people to hold them to their work, I'm through."

So when Mr. Camak and Mr. C. P. Hammond, chairman of the board of trustees, started out to raise money for a permanent plant, they met with a ready response. Ten mills taxed themselves three cents a spindle, and contributed $12,000. Mr. John B. Cleveland, of Spartanburg, donated the land, and the rest of the money was raised by contribution for a substantial stone building which was completed last spring on a hill near the Saxon Mills. This building has been equipped and furnished for present needs, and is called Hammond Hall. The plan is later to turn it into a men's dormitory and to build a women's dormitory and an administration building. There is no doubt that the funds will be forthcoming. The present plant is valued at $60,000.

The students in the school now number more than seventy, one third of whom are young women, and Mr. Camak has had on file 50 per cent. more applications than he could accept. Since the school was

in 1911 it has enrolled a total of idents, representing North Carolina, a, Tennessee, and fourteen counties th Carolina.

ow the school is supported

expenses of the school are met h voluntary contributions secured . Camak with the assistance of an The Methodist Board of Missions is salary and offers facilities for s to the churches. By means of s given throughout the South Mr. averages $400 a month. The contributed by mill owners and itendents in their individual capaci- ind by citizens of Spartanburg. y-five per cent. of the mill owners district are interested in this way, of them providing yearly scholar- f $50.

as found by experience that the e student-operative could not earn mills more than enough to pay his working half time. Their wages e between $1 and $1.25 a day. A iumber of them are orphans who o other means of support than their in the mills. A charge to each t of $5 every two weeks is made for Tuition, fuel, lights, medical at- , etc., are free. The students are d to furnish their own bedding, articles, etc.

distinguishing characteristic of the tion is the method of alternating idents between a real cotton mill ass-room work — a practice which s with entire satisfaction to all ied. The students board at the all the time, and one half work at ton Mills for a week while the other tend the classes. A night school progress for all the students con- . The day classes are conducted o'clock to 3 o'clock.

system results in attracting only orkers and ambitious, earnest stu- to the school. It is a process of l selection which results in a self- ting student body of similar aims, neither poverty nor ignorance need embarrassment.

course of study has two objects: to produce better workers who will be capable of securing positions of influence in the mills, and to teach the workers how to live. The Institute offers to students of both sexes, from fourteen years up, courses in the fundamentals of an English education, and limited high school work. Reading, writing, spelling, arithmetic, history, geography, algebra, grammar, and Bible are taught, and preparation for college is given if desired. A home-making course for the young women has recently been added, including music, cooking, sewing, etc. Something of ethics and sociology is taught, and lectures are given by a physician on physiology, hygiene, sanitation, home nursing, etc. The textile course includes cotton mill arithmetic, carding, spinning, and weaving, and is designed to fit the students for advancement in the mills.

They have a club for the practice of composition and public speaking called the Snyder Literary Society. Mr. Hammond has offered a gold medal to the young man who makes the best speech, and Mrs. Hammond gives a gold medal to the young woman who writes the best essay.

Mr. Carter acts as principal of the school under Mr. Camak, who is its president, and there are two other teachers, occasionally assisted by Mrs. Camak, Mrs. Carter, and students from Wofford College.

Miss Sallie Lybrand, the matron, is a product of the mills who lives with the girl students and looks after the cooking, housekeeping, etc. The farmer is also a former mill hand.

A CHANCE TO RISE

The earnestness and uniform morality of these students, most of whom are professed Christians, render the question of discipline negligible. Such matters as hours and habits are regulated by the students themselves. They have a law-and-order league which makes the rules and punishes the offenders. Any student, however, who is discharged from the mill for good reason is at the same time discharged from the school.

The practical opportunities offered to graduates of the school are sufficiently

alluring, for good material for superintendents and overseers who understand the business is scarce. The school had not been running six months before a superintendent asked Mr. Camak to recommend a young man for a position where he would have a sure chance to rise. The superintendents agree that the students of the Institute do better work because of the interpolated week of changed occupation, and their progress in efficiency is noteworthy.

It is too soon to look for final results — for the actual development of powerful leaders — but Mr. Camak does not question the outcome. The advancement in certain individuals in character and intellect has been too obvious to permit doubt of their future. And they are not being educated out of their class; they are growing up within it.

"I have taught the alphabet to men twenty-five years old," said Mr. Camak. "I have taught men and women who have never seen the inside of a schoolhouse. I have the first letter ever written by a man of twenty-six; it looks and reads like the work of a child of seven. And I have seen these same young men and women cover the work of two and three grades in a year, working every other week. What may they not become among their people in a few years more?"

Two years ago a young man named Sowell entered Mr. Hammond's furniture store in Spartanburg and bought a pillow. It so happened that Mr. Hammond waited on him, and learned that Sowell was about to enter the Textile Industrial Institute. He had had only a few months of schooling in his life and was doubtful of his ability to keep up in school. But in the next two years he passed through the high school course at the Institute. He is now at an institution in Nashville, in training to become a home missionary.

LETTERS FROM THE STUDENTS

It is doubtful if there ever existed in any school a body of students more eager to learn, or those whose lives responded more readily to the deeper needs of the class from which they sprang. This *spirit cannot be better* illustrated than by two or three extracts from a series of classroom compositions prepared one day on the subject, "What the Institute Means to Me:"

"My parents knew nothing of the many nights I had cried my-self to sleep, nor of the many, many times I had softly stolen out of bed in the wee small hours when they were wrapt in slumbers, and fell on my knees in agonizing prayer to God, that he, in his great love and mercy, wisdom and power, might make it possible for me by some means or other, to go to school. God heard my prayer."

"I never had the chance to go to school. When at the age of twelve I took a position in the Anderson cotton mill to earn my own living as my parents being dead, I had no one to help me from that age untill now and I had to support myself and never had the privilege to go to school but never did I cease to pray for a way to be opened to me. It seems to me ever since I heard of the Textile Industrial Institute it was an answer to prayer. All that I learned before I came here it was one session in school and I am sure it means a higher position if I stick to it and I am sure I will if it is the Lord's will. One other thing I would like to mention is as long as I stay in the Textile Industrial Institute it will mean a good home and as you know it is a bad thing for a girl to be without a home. When I have finished here I honestly believe there will be some way opened up for me to go through College."

"I have spent many an hour trying to devise some way to go to school but sence I am a poor boy and have verry little money I couldent think of any way to go. So I wandered from place to place not knowing what to do untill I heard of the Textile Industrial Institute and I would probely never have gone to school had I not heard of it. It means that I have a fighten Chance in the world. It will not only help me to help others, and help me to get that which I have been so long wishing for."

Mr. Camak is a Man on the Job. He is offering these neglected young people hope and a chance in life, and he is inspiring them with his own high ideal of service.

TRENTON'S THREE YEARS OF SIMPLE GOVERNMENT

IMPROVEMENTS AN AVERAGE COMMISSION HAS ACHIEVED IN AN AVERAGE EASTERN CITY

BY

ARNO DOSCH

JST before the commission form of government was adopted in Trenton, N. J., three years ago, the common council built a marble city hall that cost nearly a million and provided for its own sessions ressive council chamber. In that hall, which the councilmen were d never to occupy, sit the five sioners who now attend to Trenublic business. They sit around a uch as the directors of a small ıy might use. All about them are ıpty mahogany desks which were been occupied by the twenty-eight men whom they succeeded. Over- them is the high desk that was) give dignity to the president of ıncil. It is usually occupied by a r for a newspaper.

was the case the first day I spent in n watching the workings of the sion form of government in the ; city in the East to adopt it. Mr. Thompson, the city clerk, brought vith him and, after introducing me atically to the commissioners, me at the wide waste of mahogany n-existent corporation council was used. My seat was slightly raised he commissioners, and the reporters equally elevated. Nor did they to stand up and crane forward to cuments on the table.

were half a dozen men, the five sioners and the city clerk, met to iiness. There was no gavel, no ıentary rules. They took their at the table, each considering the ns on his mind, and each in turn ıg the undivided attention of his ıes. There was straightforward criticism, and every member expressed his ideas. Moreover, questions were brought up and settled with an almost unbelievable promptitude. Having sat through many a weary council meeting, when I was a city hall reporter, and having seen all questions of importance shoved into some committee for further deliberation, to me the most refreshing part about the commission's way of doing business was the way it got it done. The room in which the commission sat was prepared for ceremony. The men who had planned it intended to invest themselves with pomp and splendor and they had provided an eye-satisfying picture. But the men there now do not think about such things. They do not strive to cut a dignified figure. They wish to get things done, and they go about it in a simple way which is much more dignified than any mere appearance that their predecessors could have created.

In the first ten minutes that I sat in that room I saw business transacted which, I know, under the old councilmanic form of government, would not have been brought to a conclusion within a period of three months or more.

A question of extending a parkway arose. The extension was urged because it would give residents a view and a healthy open place in which to raise their children. Placing the social consideration first was in itself a surprising point of view in a city governing body, but the manner in which the business was pursued was even more refreshing. Maps and plans were spread out on the table, with the five commissioners bending over them and the reporters looking down from above. Suddenly Mayor Frederick W. Donnelly discovered that some houses had been

built there in the usual contractor style, unnecessarily sacrificing light and air to space and rent. "It is a crime," he cried out in the big voice with which he sometimes dominates the commission's meetings. "They're going to spoil all that end of the city. There must not be any more building like that."

And as all the commissioners were there, representing every angle of the city government, every bureau and every commission, they found a way right there to prevent it. Under the old aldermanic or councilmanic form of government they could not have arrived at the same point in months, and probably would never have arrived there. By the time the question had passed through the various committees and had been considered by the attorneys the proper bill could hardly have reached the mayor for signature in less than six months. By that time the damage would probably have been done.

AN INSPIRING SUCCESS

That single experience made it easy for me to see why Trenton had issued an enthusiastic report after less than three years' trial of the commission form of government. It also helped to explain why 318 cities in the United States now have the short ballot. Of these, sixteen are in New Jersey. Trenton's experiment was so successful from the start that it has been followed by fifteen cities and towns, including Jersey City, Passaic, and Atlantic City. Previously it had been next to impossible to arouse any semblance of public spirit in Jersey City, and Atlantic City had been easily corrupted. The quickening of public consciousness in both these cities under the new form of government is interesting in itself, but Trenton is more worth study as it is an average Eastern city and shows how the commission government works under average Eastern conditions.

The time I spent in Trenton seems now to have been given over entirely to observing contrasts. For many years Trenton had needed a filtration plant for its water supply. Typhoid took its regular yearly toll. Likewise it had needed a sewage disposal plant to protect cities farther down the Delaware River. But the councilmen, though fully aware of the need, had never built either. Improvements of that kind cost money, and the party in power never cared to go before the people at the next election with an increased tax rate. Yet these same councilmen built that expensive city hall.

Therein lies the greatest contrast of all The five commissioners have almost completed the filtration plant and are at work on the sewage disposal plant. Public health and the larger social questions have received the commissioners' immediate attention. They raised the tax rate, explaining to the public why it was necessary to do so. But nothing could have induced them to build a million dollar city hall when the people were drinking water full of typhoid germs. Trenton knows this, and that is why it is more than ever in favor of commission government. Nor is this a matter of personnel. The five commissioners of Trenton are not unusual men. Most of them have been politicians of the old kind. But the commission form of government places on each one responsibility that he cannot escape. It makes him realize this responsibility or if not every voter is certain to know it. The success of the commission form of city government in Trenton lies more in the form of government than in the particular men.

By this I do not mean to say that Trenton has not capable commissioners. I mean to say merely that they are not extraordinary men. They are office-holders, in the meaning we have come to place on that word. Neither have they succeeded a corrupt government. Trenton was not very corruptly governed. It was inefficient. There was too much pomp and circumstance. There were too many offices. The powers of government were so scattered that no officer knew what he could do, and no one could do anything without the concurrence of several other officers. The result was that public business suffered, but it was nobody's fault. Now any citizen of Trenton can find out in five minutes which commissioner is responsible for any condition that needs remedying, and he can either take it up

the commissioner himself or lay it e the assembled board with the re- :rs eagerly waiting for something rn up that will make a "story."

VERYBODY'S CRITICISM WELCOME

ıe newspapers are free in their crit- ıs. Even the Trenton *Times*, which ıt for the commission government is largely responsible for its adoption, not hesitate to criticise. For that er the commissioners freely criticise another in open meeting. In fact could hardly be greater freedom of ssion than exists in Trenton. Mean- the faith of the public in the insti- n is growing stronger.

e commissioners invite criticism and ı to it with a surprising amount of nce. If they were to build a cham- 'or their own deliberations it would ıbly be in the shape of a prize ring, the commissioners doing all their ıess in public view in the centre, and ıeats about them filled with curious ıns. As it is, every time they intend ecide some question which they feel ırouse public curiosity and, possibly, nderstanding, they issue a public ation. The citizens come, too, and by the gallery, the chairs and desks of wenty-eight councilmen, and even the essive desk of the president of the cil. The whole affair is talked over eir presence, and all who wish to are l to ease their minds.

PUBLIC HEARING ON AUTOMOBILES

case of this kind had just occurred ı I was in Trenton. The commis- rs wished to buy a number of auto- les for their various deputies and ctors. It was the economical thing ı as it saved time and obviated the sity for more deputies and inspectors, the first of the automobiles ordered caused talk about town. So it was cly announced that more were to be ed at the next meeting and those who ght it an extravagance were asked to and have their say.

large crowd came, containing many st citizens and some cranks. But all desired had their say, and the commission explained the necessity. Commissioner George B. LaBarre, who is the director of public safety, explained the value of an automobile to his plumbing inspector. He showed that it cost $600 and an added $380 a year to maintain, but with it the plumbing inspector had been able to make 2,000 more final inspections than without it. He asked the citizens whether they considered it worth while. They agreed that it was, and they also agreed that the other automobiles were necessary. Incidentally, those automobiles have all been plainly marked, and "joy-riding" in them without the danger of detection is impossible.

A similar democracy exists at all times. The office of every commissioner is wide open to the public, and, though this close touch with the public takes a good deal of time, the commissioners say they cannot otherwise find out what people want. Similarly, citizens with grievances or suggestions interrupt meetings of the commissioners and are always heard. I became impatient at the prolixity and general wrongheadedness of one man who wished to get something impossible done, but the commissioners heard him through without a protest or even a gesture of impatience. Even when he threatened the commission he was listened to politely, and I fancied he was disappointed because he had not picked a quarrel.

Except for these occasional cranks, I found in Trenton such universal satisfaction that I felt I must be meeting only friends of the new form of government. So I took occasion to seek out the avowed malcontents, to find out in what way commission government had worked out badly. It was not difficult to find men who declared it an unqualified failure, but when I pinned them down they were disappointingly lacking in facts. I did not, though I tried, find a man in Trenton who could give me a single instance in which commission government had failed. The most severe criticism I heard was made by a high state officer, who declared himself dissatisfied with the whole system. I thought I was going to secure some valuable information from him, but I did not. The worst he could say of it was that it

placed too much work on the commissioners, and that they could not get it done.

This was such an unusual complaint to make of a form of government that I carried it back to the commissioners to see what they thought about it. They agreed there was a grain of truth in it. They were kept so close to the details of their work that the larger aspects sometimes escaped them. The solution, they said, was the installation of complaint clerks, and they are loath to do that, as they are anxious to hear in person all the complaints that are made.

AN ENCOURAGEMENT TO WIDER VISION

Mr. George B. LaBarre, who with Mayor Donnelly is considered in Trenton more constructive in his turn of mind than most of the commissioners, admitted to me that this criticism applied particularly to him. He is the first public officer I have ever met who criticised himself, and that made me feel that the criticism was much less deserved than he would have me think. What he meant, as I learned, was that the duties of his office do not give him time to go into the most modern phases of city planning, such as housing conditions and social centres. A clearer understanding of Mr. LaBarre may be had from the fact that he has held city offices for many years and appears never to have been concerned with such matters until commission government laid the burden directly on his back. He knows it is there, and he feels the responsibility of his office.

SHORT CUTS TO EFFICIENCY

The commission form of government has been successful in Trenton because it takes the short cuts. Mr. LaBarre has particularly delighted in taking these short cuts. Possibly the years during which he was hampered by the excess of governmental bodies make him the more keen. He uses the police and fire department for all sorts of tasks and sends them on health and safety missions that have no bearing on their regular work. For example, one day while I was there he sent a fire company to make it impossible for certain grading companies to steal city water.

Mr. LaBarre occasionally takes the heads of his various departments with him on a joint tour of inspection. When they happen across something that needs remedying, they put their heads together and work out an immediate remedy. On one of these tours which occurred while I was there Mr. LaBarre took the chief of police, the chief of the fire department, and the health officer out to a district where a number of stables and slaughterhouses are in undesirable proximity. To clean out the whole place was impossible under the tangled laws of New Jersey, so Mr. LaBarre showed the chief of police the necessity for careful policing and offered the services of the police to both the chief of the fire department and the health officer to carry out their instructions. Now the police go through that district and report infractions of the stringent fire and health laws, not to their own department, but to the two other departments.

Mr. LaBarre's favorite example of what he can do with his police, however, is the increase in dog licenses. Formerly the hated pound-man passing through the streets was the only check on dog licenses, and there were twice as many dogs as licenses in the city. The dog catcher was also paid a dollar for every unlicensed dog that he caught and he was making half as much out of the license law as the city made. To stop this loss all policemen were instructed to make a note of the owners of dogs and to ascertain whether they were licensed. This list was checked up with the list of licenses and the delinquent owners were warned. The number of dog licenses almost doubled at once.

A SIMPLE BALANCE SHEET

Trenton's finances also are in the hands of a man who has been an office-holder. By temperament and by the nature of his work this commissioner, Mr. Edward W. Lee, might naturally be expected to follow precedent. But, with the powers the commission form of government has given him, he has revolutionized the city's finances. As he put it in his last report, "It is now, for the first time in the history of the city, possible to have at the close of each month a general balance sheet,

r to that of any well regulated cor-
on."

s sheet, which is so simple that any
ın understand it, is published reg-
, and every citizen of Trenton can
at a glance where his city stands
ially as easily as the stockholder in
oration. That, in fact, is Mr. Lee's
se in preparing these balance sheets
ple form.

Mr. Lee's suggestion when the
issioners took charge of the city,
ommissioners, instead of bonding
eficit that was left over from the
ling administration (which was the
ry way of avoiding responsibility
, cut it down by current revenues
t is now only one fourth of what it
Similarly, the floating debt has
cut in half. And instead of bor-
g from the banks in anticipation
es, the city is building up a working
l for its revenues.

he details the city is also much more
sslike. It has a collector of delin-
taxes, who works on commission.
year he saved the city $142,500.
noney he collected was so far in
s that the city would probably never
eceived any of it without his work.

es have risen slightly in Trenton,
y because the commission has faced
ligations. It has also had a great
of corrective work to do. Trenton
een in the position of a great many
can cities in which the government
en under such a complete system of
s and balances that it is hardly pos-
to get anything but routine work
All modern constructive philan-
y was lacking. The city had its
of tuberculosis, but there was no
culosis hospital. The failure of an
to secure the use of an unused
al for contagious diseases as a
culosis hospital was one of the things
nost disgusted the citizens of Trenton
their inelastic government. The
ıs were progressive, but their govern-
was not. Under the present form
vernment their demand would have
answered in five minutes. Trenton
can get quicker action than the
ge corporation.

Trenton owes commission government largely to Mr. H. G. Stoddard, formerly president of the Trenton Iron Company, who is now a resident of Worcester, Mass. Mr. Stoddard was also president of the Young Men's Christian Association, a director of a bank, and a citizen with many other activities. He came back from a trip through the Middle West less than five years ago enthusiastic over commission government and began to interest people before any of them knew very much about it. When it became enough of a movement to have a news value, Mr. James Kerney, editor of the Trenton *Times*, went west and south to study the subject.

Beginning with earliest history when Galveston, Tex., was ruled by a commission following the great flood because the old form of government had broken down under the strain, he followed the movement gradually north. He learned that Galveston's commission, which was a real commission appointed by the governor, had built the sea-wall, raised the level of the city, lowered the taxes, and reduced the debt. He learned that, though the cities which later took up the idea and improved on it had not had such great problems to deal with, they had made of the commission form of government a workable system that could be made to respond to popular will. Houston, Dallas, Denison, and Austin each made improvements in turn, but it was the Des Moines plan that Mr. Kerney brought back to Trenton, and it is the same plan that is finding favor in other Eastern cities.

By the Des Moines plan the initiative, referendum, recall, and non-partisan primary are added to the original idea, and now, in New Jersey, which appears to be hurrying to make up for lost time in new legislation, a preferential voting law also is added. It has all the latest devices for electing the men that the voters wish to elect and for keeping them well in hand.

When Mr. Kerney returned, as enthusiastic as Mr. Stoddard over commission government, he commenced at once a campaign to secure it for Trenton. Mr. Frank Thompson, who was then a reporter on his newspaper, wrote about commission government for a year and a half

until every one in Trenton knew all about it. Mr. Stoddard induced the Trenton Chamber of Commerce to appoint a committee to investigate its value and then framed resolutions for it to sign. He also secured the support of Mr. F. W. Roebling, who, on account of his great wealth, had an interest in practically every thing that was undertaken in Trenton.

A QUARREL OVER FARES

Just at this time the Trenton Street Railway Company — which operated practically all the street cars in the city, decided to stop issuing six tickets for twenty-five cents, which had long been the custom. This action caused a good deal of bitter feeling. Those men who were interested in pushing forward commission government used this incident to arouse the city, reminding the voters that the street railway company had been notoriously powerful in city politics. This cost the movement the support of Mr. Roebling, who was president of the company, and a citizen who was popularly accredited with "owning" Trenton; but, although Mr. Roebling was personally attacked, he did not take an active part in the fight against commission government. There was no active fight against it. It had inertia and conservatism to overcome, but there was no organized opposition.

The securing of commission government by the devious means of a fight on a street car company is one of those curious cases of people going blindly, but guided by an instinctive feeling, toward what they want. Mr. Kerney, Mr. Stoddard, and a small group of men knew what they wanted from the start, but the enthusiasm that started the popular movement toward commission government was undoubtedly animus against the street railway company.

The other two commissioners of Trenton are Mr. J. Ridgway Fell and Mr. William F. Burk. They are respectively Director of Streets and Public Improvements, and Director of Parks and Public Property.

With its commission of average good ability, Trenton has had average good results. It has shown that any American city can take the commission form of government and get better results than it can with the old order of divided authority and divided responsibility. It will probably not be long now before commission government will be just as common in the East as in the West. Its greatest obstacle is the existence of state laws which prescribe the old forms of city government.

For example, New York has had a hard fight even to get legislative permission to try commission government. Buffalo has led the fight for four years and has only this year secured the consent of the legislature to place the matter before the people. This fight had a dramatic side to it. There was a mass meeting in Buffalo the night the question came up before the Senate, and a direct wire was kept busy to make the Senate realize that the people of Buffalo were in earnest. They secured the passage of the law. It enables cities of the second and third class — all moderate sized cities — to decide which of seven simplified forms of government they wish. The two most prominent of these forms are commission government and its most modern phase, commission government with a business manager. It is anticipated that under this law New York will soon have many more commission-governed cities than New Jersey. Even New York City has been tending that way by placing increased powers in the hands of the Board of Estimate and Apportionment. Its adoption of the plan was evidently unconscious. It had to place authority somewhere, and this modified commission government was the result. So the biggest city in the country is coming as close to commission government as it can. Cities as large as New Orleans, Denver, St. Paul, Birmingham, Memphis, Jersey City, and Portland, Ore., now have commission government. It has proved successful in towns of one thousand inhabitants and in cities of four hundred thousand. Possibly commission government is the solution for even New York City's difficult municipal problems.

A GREAT AMERICAN SCIENTIST

HEOBALD SMITH, HEAD OF THE NEW DEPARTMENT OF ANIMAL DISEASES AT THE ROCKEFELLER INSTITUTE — A MAN WHOSE WORK LAID THE BASIS FOR RECENT DISCOVERIES IN THE TRANSMISSION OF INFECTION BY INSECTS

BY

JAMES MIDDLETON

EW Americans have ever heard of the modest American scientist who, in a few months, will leave the chair of pathology at the Harvard Medical to become the head of the new de- nt recently founded at the Rocke- Institute for the study of animal s. This is so probably because rk of Dr. Theobald Smith has lain in the high places of science. An der Bell who invents a telephone, ison who invents an electric light, oni who devises a scheme of wireless phy — each of these men has done ing that immediately appeals to pular mind. We can all appreciate nificance of this work — its imme- earing upon civilization and history. who discovers a new germ, how- or a new roundabout method of on, works in a field which the e reader of newspapers and maga- an only faintly comprehend. Yet man may do as much to advance mfort and happiness of the human s one who devises an aeroplane or or car. We are just beginning to hat it is the minute and invisible that most affects the course of history. A philosopher like attempts to get under the common- acts of human history — the battles, ies, invasions — and to discover al things that have controlled the pment of mankind: climate, food, d the general aspects of Nature. , however, wrote before the days teur, and his generalizations are, re, far from complete. Modern ans, for example, tell us that what really caused the downfall of Greece were not the influences that are commonly assigned — but the malarial mosquito.

It is in this minute field that Professor Theobald Smith has spent a lifetime. His work, it is hardly an exaggeration to say, has laid the basis of a new branch of bacteriology. He was the first man to demonstrate that the bite of insects can transmit contagious disease. Considered as a statement by itself this may not seem especially remarkable; analyzed in its ultimate benefits, however, few discoveries in the field of medicine have greater practical consequences. Since Dr. Theobald Smith demonstrated that Texas cattle fever is transmitted by the tick, think for a moment of the other things that we have learned. We know now that one kind of mosquito carries malaria and another kind yellow fever. We have learned that the house fly transmits typhoid and the rat flea the bubonic plague. The body louse, it has recently been discovered, is the intermediate host of the typhus fever germ. The tsetse fly in Africa is the guilty party in transmitting the sleeping sickness. Indeed, the search for insect-carriers is now the favorite quest of scientific medicine. Whenever the bacteriologist faces a difficult problem in medicine, he always begins to look about for some neighboring insect. Scarcely a diminutive form of life is now above suspicion. That undignified and rather vulgar beast whose popular name is bed bug is now subject to constant scrutiny. There are several diseases that it may possibly play a part in perpetuating. In the old-fashioned mystery the usual recommendation was, "seek the

woman": in the modern medical detective story the saying is: Seek the insect.

A "GREAT ROMANCE IN PATHOLOGY"

It was in 1888 that Dr. Smith, then twenty-nine years old, began work on what Dr. William H. Welch, of Johns Hopkins, has called his "great romance in pathology." He was then in charge of the pathological laboratory in the Bureau of Animal Industry at Washington. The greatest problem of American cattle raisers then, as it is now, was the widespread prevalence of Texas cattle fever. This disease had for years been a scourge in the United States. As far back as the records go, there are evidences of its ravages. Colonial history shows that there was practically no part of the country in which it had not spasmodically appeared; and there were many frightful epidemics. One of the most virulent occurred in 1868 when the disease broke out as far north as Pennsylvania and New York. It fell suddenly upon herds like a Homeric murrain: the fever was high, the animal's body usually being extremely hot to the touch, and it was accompanied by an intense anemia and emaciation. The mortality was exceedingly high — from 80 to 90 per cent.

Another of its extraordinary characteristics placed the disease almost in a class by itself. That was that it was usually transmitted by entirely healthy cattle. A strong, vigorous steer, introduced suddenly into a strange herd, would quickly spread the disease. The whole herd might sicken and die, but this invading animal, clearly the cause of all the trouble, would remain in perfect health. Again, another animal, sick unto death, would be brought into a herd and not transmit the disease. Frequently the association with other cattle was not necessary at all. Thus a group of Southern cattle might pass grazing over a particular field. A month later another herd might pass over the same area. They invariably fell victims to the disease. The great epidemic of 1868 was caused, it was supposed, by the fact that healthy cattle had been transported in steamboats that *had previously harbored* animals from the South. Another suggestive fact was that the disease raged only in warm weather. The situation was so bad that all cattle raisers had a horror of Southern herds. The mere fact that a steer came from a Southern state caused it to be ostracized.

THE FARMERS ACCUSE THE TICK

With our present knowledge these peculiarities would not be especially baffling; in fact, they would furnish the key to the solution. But, in 1868, there was no disease that was known to resemble this one. Infection from healthy animals; no infection from sick ones — here certainly was a puzzle. Infection again without contact — here was apparently something quite new. Indeed, the scene was laid for as pretty a detective story in science as one could well conceive. Where was the scientific sleuth who could run down a clue?

In the early stage of his investigations Dr. Smith's observant eye detected one suggestive fact. He obtained his earliest hint from a superstition that was rampant among the farmers. If we investigate most medical discoveries we shall find that the ignorant lay intelligence had first grasped the idea which the scientist afterward found to be true. Since the work of Ronald Ross with malaria, the medical antiquarians have found many statements, by medical men and others, that the mosquito had something to do with it. Long before Reed, certain Cubans had maintained that there was a connection between yellow fever and the same insect; Dr. Finlay, a distinguished doctor in Havana, wrote a book about it as far back as 1881. These ingenious people were not scientific discoverers, because they had merely a theory; they had been able to think out an explanation, but had not been able to demonstrate that it was true. And now, as Dr. Smith found, the farmers in the Southern States had their own idea as to the cause of Texas fever. They pointed to a familiar bean-shaped insect, known and detested as the cattle tick, and declared that it was the cause of all the trouble. "That's the critter that kills all the cattle," they would say. Of course, they could not stand cross-examination:

ick did it, that was all. Whenever a acled gentleman from a Northern atory appeared in the South, he 1 hear about this disease-bearing He received the explanation with usual scientific smile. Who ever l of an insect giving any one a disease? so, in his investigations, the scientist ys ignored this trail. He would spend ' months hard at work, return home, a long and learned report, and that he end. His scholarly volume, filled cross references and German quota-, would find its way to the shelves e scientific societies; and American would continue to die of the dis-by the thousands.

COMPLEXITIES IN THE PROBLEM

w Dr. Smith also heard this tick d: unlike the others, he decided to it a trial. He made a map showing spread of cattle fever. He made an-showing the "happy hunting ground" e tick. When he compared the two, covered practically the same terri- No cattle fever except in country was frequented by the tick — this ed to be a pretty constant rule. ently there must be some basis for agricultural superstition associating two forms of animal life. But what l it be? This problem, although the in insect transmission, was con-ably more intricate than those that been solved since. Once get in your that the mosquito carries malaria, the method can be reasoned out. the mosquito is a flying animal. It one animal, then goes out and bites ner. It is thus easy to see how it can the germ of disease. But the tick not fly. Moreover, it is an extremely ious parasite. Its plan, after it is ned, is to crawl quietly upon a blade ass or shrub and there patiently wait ts prey. It has only one ambition e; and that is to fasten itself to the ial system of a healthy steer. Unless es this after a reasonable time, it untold millions perish because they in this life quest; enough succeed, ver, to assure the perpetuation of ice. When the tick has once attached itself to the animal's body it is absolutely content. It likes its habitat so well that ordinarily it does not leave it. Unless brushed off by a swishing tail or rubbed up against a tree it passes its whole life on the body to which it has fastened itself. It does not leave until, almost bursting with blood, it drops off, lays 2,000 or 3,000 eggs, and immediately dies. There, then, was the knotty point; inasmuch as the tick does not go from animal to animal, how could it possibly carry the disease from one to another?

To the average mind, this circumstance would entirely dispose of the theory that it was the infecting agent. Dr. Smith's experiments, however, convinced him that it was. About 1889 he found the real microbe of the disease. It grew inside the red blood corpuscles of the diseased cattle, and it worked its havoc by destroying these red cells — a fact that explained the animal's anemic condition. Then he tried several experiments that much resembled those which Walter Reed undertook ten years afterward with yellow fever. The main difference was that he used cattle while Walter Reed used human beings — a circumstance made necessary by the fact that animals do not have yellow fever. He collected several animals whose bodies were covered with the usual multitude of ticks and placed them in an enclosure occupied by a tickless herd. In about thirty days the latter animals fell ill with the disease. He then carefully removed by hand all the ticks on the first group, and mixed the cattle with another healthy herd. This time there resulted no trace of the disease. His next experiment was to scatter a field with ticks removed from Southern steers. Healthy cattle, led to browse in this place, promptly contracted cattle fever. These experiments, of course, were conclusive. The observant farmers were right: the obnoxious tick did cause the disease.

DISEASE TRANSMITTED BY YOUNG TICKS

True, Dr. Smith was as far as ever from solving his problem; the inevitable *how* was still unanswered. It took seven years' work to clean up the mystery. And when Dr. Smith finished it was about

as perfect a job as was ever done on this side of the ocean. There was practically nothing about the peculiarities of the disease that he did not know. It was not until he hatched artificially a number of ticks' eggs in his laboratory that his victory was complete. These, when attached to cattle, gave the disease, notwithstanding that they had never fed upon the blood of cattle, sick or well. Again, other ticks were entirely harmless. The young parasites, not the old ones, carried the infection. Here, then, was exactly what happened: the old tick, having gorged itself with blood, swarming with the germs of the disease, fell off the cattle and laid its eggs on the ground. These eggs contained the virus of cattle fever. The tick, from its embryonic state, was never free from the infecting agent. As soon as it could crawl it advanced on the cattle, as I have already described. With its first bite it injected the deadly microbe. The reason that Southern cattle remained healthy, despite being covered with these parasites, was now simple enough. They were immune to the disease, just as people in Southern climates grow immune to yellow fever. They carried the pest to Northern cattle because they carried the tick. The disease broke out a month or so after their arrival because that was about the period it took the eggs to develop to the crawling stage. The disease disappeared with cold weather because the frost killed the parasites.

"These observations," says Dr. Smith in his published report, "forced upon me like a flash the conviction that we were here in the presence of a wholly new fact in the cause of disease. This was the introduction of the disease by inoculation." Until then the scientists knew only one way of producing disease artificially. This was by growing the germs in a test tube and injecting them into an animal with a syringe. These experiments showed that Nature was constantly doing something like this all the time. The body of an insect, like a tick — and, as we have since learned, of a mosquito, a fly, a flea, a louse — makes an unexceptionable culture tube. And its bill or beak makes an ideal hypodermic syringe.

Dr. Smith himself referred to the "newness and awkwardness" of his discovery. At first the biggest European investigators found it exceedingly amusing. "I must say," remarked the great Robert Koch, "that this last experiment with the young ticks has not really found faith with specialists; it does seem too romantic." A few years afterward, however, Dr. Koch repeated the American's experiments and confirmed them. Dr. Koch's last important work, on the sleeping sickness in Africa, was a study for which the American had laid the foundation in his cattle fever experiments. Dr. Koch afterward took hold of another discovery of Dr. Smith's rather disastrously to himself. For it was Dr. Theobald Smith who first demonstrated that there was a difference between the bacillus of bovine tuberculosis and the bacillus of human tuberculosis. On the strength of this discovery, Koch made his famous statement that human beings stood no danger of acquiring tuberculosis from cows. This will always be remembered as one of the "breaks" of which the greatest scientists are sometimes guilty. The medical world has since decided that Koch was right in this discussion in so far as he followed Theobald Smith and wrong when he differed from him.

Dr. Smith was one of the earliest champions of the mosquito discovery; he defended Dr. Ross when that great Englishman badly needed friends. The American knew that it was true because of the work which he had done in Texas fever; and it was his work, more than anything else, that led the scientific world to accept the accuracy of Ross's observations. The Rockefeller Institute has thus acted wisely in making Dr. Smith the head of its new animal department. Probably no living bacteriologist is better qualified. And there is much work to be done. Dr. Smith's great discovery has not been effective in stamping out cattle fever. He has shown the way — by destroying the ticks; but the ticks still ravage almost unchecked.

TRIUMPHS OF OUR TRADE IN OTHER LANDS

: PASSING OF THE "WOODEN NUTMEG" AS AN INTERNATIONAL REPROACH OF AMERICAN EXPORTS, AND THE STEADY GROWTH OF OUR GOODS IN THE FAVOR OF FOREIGN PEOPLES — STORIES OF AMERICAN PRODUCTS THAT HAVE "MADE GOOD" IN EVERY PART OF THE WORLD

BY

LEWIS R. FREEMAN

THE ring of excitement in the consul's voice was noticeable even over the telephone. "Come over to the A — C Company's warehouse at ten ɔck," he said. "Things have come to how-down with those German and ɜrican plows I was telling you about erday, and the developments promise be interesting. Pick me up at the sulate if you can, and I'll explain t's in the wind on the way over."

: was in Buenos Aires, eight years ago, at the time when, as a result of the easing attention American manufac- rs were giving to the special require- ıts of the Argentine market, our agri- ural implements were beginning to y all before them in this incalculably ıable field. For a couple of years ɜrican plows of all classes had been ing the market pretty much to them- es, because they had been giving the : results under service. Also, despite ı freights and the other trade handi- ; with which American goods have ıys had to contend in South America, manufacturers had been placing their hinery on the Argentine market at ıer more favorable terms than Eng- l and Germany offered. But about time of my visit the latter country, ɔwing a characteristic policy, had ɜred the market with a number of low- ed implements that were, to the casual er, apparently the equal of some of the from the United States. The more plicated of these German implements, ı as threshers and harvesters, were lly well enough constructed to demonstrate favorably, but the simpler ones, such as plows, disks, harrows, and the like, were having a tremendous sale. One plow in particular was in great demand among a certain class of Argentine dealers because of its good finish and extremely low price.

The representative of an American factory, arriving about this time, found his business in plows almost at a standstill as a result of this German competition. The German plow was apparently a duplicate of his own in every particular except in finish, and in this respect it had all the best of the comparison. And it was being turned over to the wholesalers at a price 25 per cent. lower than the lowest price his company permitted him to make. In vain the American explained that his plow was of forged steel, whereas the other was only of cast steel and likely, therefore, to succumb to the first rock or root it encountered. The Argentine dealers merely spread their hands, shrugged their shoulders indifferently, and muttered, "Quien sabe," with their eyes fixed dreamily on the ceiling. At length a dealer, more practical and more considerate than the others, told the American that it was a simple business proposition, that his clients were buying the cheaper plows in preference to the other, and that he had only the salesman's word that his plow would more than make up in length of service for the difference of price. In short, the wholesaler, though he had probably never heard of Missouri, intimated that he would like to be shown. To this the American eagerly assented, and it was to the "showing" that the consul had asked me to come.

The consul and I found the American already on hand when we arrived at the big warehouse of the Argentine implement company. He was a characteristic representative of the men that our manufacturers were sending to South America at that time — ready, alert, confident, keen as a whip, and full of his "line," but uncertain with the language and not yet aware that ultimate success must be sought by conforming his business methods to those of the country. The present emergency, however, was one with which his natural talents fitted him to cope.

A PLOW THAT RANG TRUE

"I have explained to Don Carlos," he said, after introducing us to the Argentine manager, "the reason for the difference in the price of our plow and the German imitation, and also why this better quality more than makes up for that difference. Just how much better the American article is I am going to show him as soon as a couple of the German plows arrive. Don Carlos was all sold out, and I've had him telephone to the German traveling representative here to send over a couple to show to prospective customers. He's started the plows already and sent word that he will come himself shortly to help along the sale. I want to make my test before he arrives, because, unless I'm very much mistaken, he won't consent to the use of his plows when he sees what the test is."

The German plows arrived presently and proved to be, as the consul had told me, almost exact duplicates of the American implement in design and rather better in finish. Wasting no time in further explanation, the American salesman called over a powerful peon, whom he had waiting outside, and ordered him to swing with all his strength with a ten-pound sledge upon the share of one of the American plows. The husky Basque spat upon his hands, hunched his muscular shoulders, swung the heavy hammer in a wide circle, and brought it down on the spot indicated. A note as clear as that of a bell rang out and the plow went bounding across the floor, but, save for the patch of red paint that fused to and came off on the hammer head, the share was unmarked. When the operation was repeated upon one of the German implements, the first share was completely shattered, the pieces being scattered about the floor like so much broken crockery. Thinking that possibly the faultiness of this share had been an accident of construction, perhaps of over-tempering, the dealer requested the peon to swing upon the second sample. This blow demonstrated that the German implements were not even consistent in their defectiveness, for this share doubled up under the blow and folded lovingly in around the hammer like a flower going to sleep at night.

There were tears in the consul's eyes as he wrung the salesman's hand in congratulation, but all he said was, "And they still accuse us of exporting wooden nutmegs!"

The German entered just in time to gather up his wreckage, and he was so enraged that he threatened the dealer with a suit to recover the value of his damaged samples. I learned afterward that a large order on his house was countermanded by cable, and that the German did have to go to law to collect a considerable amount actually due him from the indignant Argentino for plows that had already been sold. The American closed a substantial order. The next day, resolving to take the bull by the horns, he set out with a sledge hammer to make the rounds of the dealers, only to learn to his mingled chagrin and satisfaction that the wily German had been ahead of him and, on one pretext or another, had removed his plows from the path of destruction. The sale of cheap German agricultural machinery on the River Plate languished for several years after that, and the most casual reference to a hammer is pretty sure to bring a flush of guilt or anger to the face of a German salesman in any part of South America even to-day.

OUR REPUTATION FOR "WOODEN NUTMEGS"

Our foreign trade competitors have a number of stock stories to illustrate the doubtful character of American goods, but none to compare with the "wooden nutmeg" classic. I have heard it alluded to

ı score or so of languages and dialects :very corner of the six continents and seven seas. That the expression ame a byword, and that it was per- ently applied as a slur through so many rs to American goods in general, was to one thing, and that it profits us no t to deny — we certainly did, over a ; period, offer many descriptions of ooden nutmegs" abroad. Not a great t — probably only a small fraction of per cent.— of our exports were of this racter at any time, but these were ely scattered, and the innocent have to suffer for it with the guilty.

ERICAN LOCOMOTIVES IN AUSTRALIA

. striking and reassuring example of the ent confidence abroad in American oad equipment is being furnished by tralia in connection with the construc- ı of its first great transcontinental . No country or colony in the world is ealous in forwarding home industries ustralia is. But in building this line, additional locomotive is required for y fifty miles of track; and track is ıg laid at the rate of a mile or two a . This extraordinary demand is much ond the power of the home manufactur- to supply. Bids from abroad showed : the Baldwin Locomotive Company of erica was the only concern that would rantee to make the deliveries at the rvals specified, and as a result this pany has supplied, and will doubtless tinue to supply, all the locomotives the great transcontinental line that not be built in the country. How :h Australia's commercial patriotism buying home-built locomotives at all osting that country was shown in a nt debate in the Commonwealth liament, when it came out that the erican engines were being purchased, vered at Port Augusta, for approxi- ely $23,000, whereas Australian engines : costing more than $30,000 apiece. pite the great difference in price, the nier declared that the American loco- ives were bought solely because, ful- ıg all technical requirements, they d be delivered when they were wanted. ne of the most frequent, as well as one of the best founded, complaints against American manufacturers in the past has been that they have failed to give adequate attention to the require- ments of the markets that they have endeavored to supply. For example, an American mining machinery company once ignored the very complete description of local conditions that was sent with an order from a Peruvian company which was planning to use a dredge somewhere on the upper Amazon. The slightest study would have revealed to the Ameri- cans that access to this region is possible only by a route that leads over a couple of lofty ranges of the Andes. Neverthe- less, they shipped a dredge of the kind that can make its way only through marshes or swamps at the rate of a few hundred feet a day. If this story is true — and, judging from the way I have known other orders to be filled in the early days of our export trade, it probably is true — it is especially fitting that it should have been an American concern which recently furnished one of the clever- est and most creditable examples of conforming to limiting circumstances that the West Coast of South America has ever known.

OUR PREËMINENCE IN ELECTRIC WORKS

A gold mining company which was opening up a property at Santo Domingo, at a great elevation in the Cordillera of Central Peru, wished to install a hydro- electric plant, so it called for bids for a three-phase generator, rated at 300 horsepower, which could be transported to its destination on muleback. The conservative British manufacturers of electrical machinery refused to consider the contract on the ground that such a thing had never been done before, and even the Continental houses held that it was impossible to construct a machine of greater capacity than 50 horsepower which could be transported as specified. A German firm made a very low bid for an installation that could be transported by wagon, but as the expense of widening the trail to the mine would have amounted to something like forty times the cost of the machinery, this could not be enter-

tained. The General Electric Company of America, however, put its experts to work and turned out an installation that conformed to specifications in every particular. This was carried to its place on mules, set up and put in operation, and proved to be an unqualified success in every respect from the outset.

The American genius for working out hitherto unsolved mechanical problems had also to be called upon in designing and building the hydro-electric stations of the great Cerro de Pasco copper mines in Peru, where, on account of the great elevation — more than 13,000 feet — extreme precautions had to be taken to avoid the disturbance of atmospheric electricity. The contracts for great hydro-electric works in all parts of the world come to the United States as a matter of course. Installations such as those of the Tata and Cauvery projects in India, and those that require steel trestle work of unprecedented magnitude, are given to America by preference as the only country that has had the special experience necessary for successfully carrying them through.

One of the greatest elements in the success of American machinery abroad has been what might be called its superior "utility" — the fact that it will give a more valuable service for the money invested in it. Often it is more expensive than German or Belgian machinery; sometimes it has not the "life" of that of England; but in practically every instance its labor-saving and work-performing qualities make it the best investment.

BRICKS FOR THE GARDEN OF EDEN

I recently came by chance upon an interesting illustration of this superior "utility" of American machinery, in the Tigro-Euphrates Valley, where a British company is carrying out for the Turkish Government the magnificent plan that Sir William Willcocks outlined for the reclamation of this, the traditional site of the Garden of Eden. The first step in the project was the building of a great barrage at Hindieh to divert the waters of the Euphrates River into its old channel by the site of ancient Babylon, and in the construction of this great dam the principal element of cost proved to be the manufacture of the brick of which it was largely built. A huge army of Arabs were employed, by contract, in making bricks in hand moulds, and the plan was to supplement the fluctuating and unsatisfactory supply from this source by the use of brick-making machines imported from England and the Continent. Notwithstanding that Arab labor is comparatively costly and inefficient, the operation of the best of the machines proved to be so complicated and slow that they were unable to turn out cheaper bricks, or even better bricks, than the swarming fellaheen. The resident engineer had about given up all hope of accomplishing anything mechanically, when the foreman of the brickyards, a progressive young Welshman, induced him to send for an American machine with which he had had some experience at home. This arrived in due time and had been in operation about six months at the period of my visit to Hindieh in the summer of 1912, and not only was it turning out perfect brick, but it was also accomplishing its work 75 per cent. faster and 25 per cent. cheaper than the best of the other machines had done. The latter, naturally, were in the scrap heap, and two more American machines had been ordered. These, I have since learned, played an important part in forwarding the opening of the great barrage in January.

OUR OFFICE SUPPLIES ABROAD

In high grade typewriters — machines that sell for $100 or more — America dominates the world's market, and a half dozen of our leading makes are so far beyond anything that is manufactured elsewhere that they are employed exclusively by many foreign business and industrial concerns, and even in governmental offices. Our lead in this line, as well as in adding-machines, cash registers, duplicators, and similar devices, is so great that it is probably beyond danger of challenge. In lighter and lower priced typewriters we have also built up a good foreign business, though in this branch we have done so in the face of much competition. I had a good chance to

ı the character of the most trouble-
: phase of this competition on my
trip abroad.

ı this journey, principally on account
s portability, I had taken with me a
: American-made aluminum folding
writer which had been on the
cet only a year or two. Despite its
ness, the little machine stood up
zingly under hard and persistent
ice, and a year's work had left few
cs of wear upon it. Then the pack-
: that was carrying it through the
ntains near the Chino-Burmese fron-
went over the edge of a storm-washed
and landed at the bottom of a ravine
the load beneath it. I took the
:s of the little typewriter back with
to Rangoon, where they wanted to
ge me more for the necessary repairs
the machine was worth. One of the
:rs there, however — an oily Bengali —
/ed me a machine that he had just
ved from Germany, which, except
its frame was of some heavy pressed
ıl instead of aluminum, was an almost
:ct replica of the one I had been carry-
I bought it for 100 rupees which,
/ing for duty and freight, was only a
: more than half of the $50 that the
r machine was sold for in America.

.PETITION WITH GERMAN IMITATIONS

cept that it was noisier and stiffer
my little American machine, the
typewriter worked very satisfactorily
about two weeks. Then cumulative
bles set in, and at the end of three
ths the mechanical parts were so
ı and sprung that a number of the
bars would not carry up to the roller,
ıy nothing of the lack of alignment of
others. The thing was as flimsy
German toy, as poorly made as it was
p, and I was glad to learn from the
lish dealer in Bombay, who put my
machine in working order again for a
reasonable charge, that it was already
ıoroughly discredited that it was being
lled only in the native bazaars, and
decreasing success even there. I am
using the original little American
hine on all journeys on which port-
ty is an object.

I have in mind many other examples of the characteristic German practice of turning out an article that is faultless in finish but most unreliable in service. Nearly every one of these is an obvious imitation of some American article that has already gained a world-wide reputation on its merits. Our best sewing machines, like our high grade typewriters, are in a class by themselves, but the bazaars of Maylasia, India, Turkey, and North Africa were flooded a few years ago with a beautifully inlaid and varnished hand machine which, as it sold for about 25 per cent. less than the American article of which it was a palpable imitation, had things a good deal its own way until its cheap materials, giving way or wearing out in use, revealed its true value. German cameras, made in all the popular designs of the American "kodak," have been put on the market recently, and, being low priced and well finished, are having a large sale in places where the public have not learned that they "peel" and warp on exposure to heat and moisture as no American camera ever did. I speak feelingly again, for I was forced to buy one of these German cameras in Batavia after my own had been lost by a coolie.

EXPERT SERVICE THAT WINS TRADE

American steel rails and girders are known and used throughout the world, and are willingly contracted for whenever the Steel Trust sees fit to make prices to meet foreign competitors. An active trade in reinforcing bars for concrete construction is of more recent growth. Two years ago I noticed a decided preference for American reinforcing materials at all the Asiatic ports, and it was with especial interest, therefore, that I read in a late consular report that at least one American firm has gone after that business in a thoroughly systematic manner. Consul Henry D. Baker, on special commercial service in Asia, after telling of the demand in India for American roofings, expanded metal, and reinforcing bars, writes:

"The extensive use of reinforcing materials in India has been specially promoted by one firm in Detroit, which employs in India trained engineers from the

United States, who on arrival in India make a careful study of local conditions and then furnish technical advice, supervision, and selling assistance to the different local selling agents of this product. They take care that contractors in charge of buildings using such reinforced steel make no technical mistakes in the use of such material in building construction."

Such methods as these will be richly rewarded, for work along similar lines was an important element in building up the great export trades of our manufacturers of agricultural, mining, and electrical machinery.

AMERICAN ZINC IN THE TROPICS

Corrugated iron sheet for sidings and roofings, which was an American invention in the first place, naturally had things all its own way when first put on the market; but that it has held its place in the face of the vigorous foreign competition of the last decade is especially gratifying. American "zinc," as it is popularly called, roofs the outposts of the tropics of both hemispheres, and, from China to Australia, from New Guinea to Nigeria, I found it generally credited with a longer life — due to a heavier galvanizing and a greater stiffness — than that manufactured in Europe. Within the last two or three years American galvanized iron culverts have begun to follow in the footsteps of our corrugated sheets. These culverts are manufactured in sections which "nest" compactly, and so are easily portable. I have seen bales of "split" culverts, swung over donkeys and camels, stringing out in advance of railroad construction across the deserts of Mesopotamia, the Sudan, and Algeria.

The success of American composition roofings has been no less sweeping than that of our corrugated irons, and there are few modern buildings erected within the last four years in the Orient, Africa, or South America that are not covered with some form of it. An especial triumph for this distinctively American product was its selection to cover the great Tallak tank in Calcutta, the largest structure of its kind in the world. It will demand very aggressive competition from Europe seriously to threaten the supremacy America has won in this line.

Our European rivals admit that what they somewhat contemptuously term "cheap Yankee automobiles" are having a remarkable sale in all parts of the world, and are wont to attribute the fact to their low price alone. It is indeed true that price was a potent element in introducing these machines among peoples of modest purchasing power, but this alone will not explain why the greatest increases in sales have been in the places where they were first sold. The real reason for this popularity is that the light American machines have from 25 to 50 per cent. greater power than competing machines have, and are built to withstand incomparably harder usage than any foreign machine that sells within from $300 to $500 of their price. The kind of service that is responsible for the popularity of the light American car was well illustrated by an experience which came to my attention in Assam, on the northeastern frontier of India, two years ago.

A TRIUMPH OF OUR AUTOMOBILES

In the face of a great deal of opposition from British dealers, the Indian Government bought several hundred light American automobiles for use at the Durbar at Delhi in 1911. After a few weeks' service in connection with that pageant these machines, being offered for sale at a small discount from their purchase price, were eagerly bought by officials, planters, and merchants from all parts of the Middle East. This sale was the big end of the wedge opening wide a market in which an encouraging beginning had been made.

One of these little machines was sold to a tea planter of Upper Assam, a region in the Himalayan foothills with scarcely any good roads and a rainfall of from 300 to 500 inches a year. It was the first automobile to go into the mountain section of this region, and the rough-and-tumble service that the progressive planter got out of it on roads and paths that had hitherto been sacred to the pony, coolie bearer, and pack coolie was the wonder of the countryside. Few machines could ever have been given much harder usage

the staunch little Yankee invader, was still in first class condition when, ıonths after it was purchased, the er's native chauffeur drove it into hout on the Cherrapunji Road during het, and it went rolling five hundred nto the rain-swollen river. After a s search had failed to reveal any of machine or driver, both were up for lost, and the planter, finding it had become almost indispensable, to Calcutta for another of the same l, several of his neighbors taking the ion to place similar orders.

ENGINE THAT SURVIVED DROWNING

e remains of the pioneer machine found at the end of the rainy season, al miles below the point where the ent had occurred. The wheels were and the body battered almost be- recognition, and it was only on the of sentiment that the planter had ieces gathered up and taken home by s. A month later, while on a tour sam, I saw the salvaged engine and of the transmission gear set up over a and actually pumping water to the er's bungalow on the top of a high . On the strength of this engine's ibility trial," as well as on the general ing of a number of other machines e same make as the first one, it is going to be an easy thing to talk pean automobiles to the tea planters per Assam for some time to come.

us American manufacturers are, and been for a number of years, supplying reign markets goods of irreproachable ty and unrivalled utility. Sporadic nces of shipments of inferior goods come to my attention now and then, ı my last five years of travel abroad I failed to discover a single general f American export in connection with ı I did not see a conscientious effort ve the foreign buyer his money's ı. Not always is the American article ıg the best sale, even in the face of its ble superiority. This is not the of the article itself, however, but is ly because its rivals are better estab- l locally or have a better distribu- organization back of them.

Three nations will divide between them the lion's share of the world's trade of this century — Great Britain, which annexed the best part of the commercial as it did the geographical world by priority of occupation, and which has the largest trade at the present time; and Germany and the United States, both of which are rapidly overcoming Britain's lead. The unspoken trade slogan of Great Britain might be fairly stated as, "The Goods We Sold Your Fathers;" that of Germany as, "Cheaper Goods;" and that of the United States as, "More Useful Goods." In this article my main endeavor has been to show how our manufacturers are living up to the American watchword.

In the last ten years Germany's foreign trade has increased, both actually and relatively, slightly faster than the trade of the United States, and the two nations are now running neck-and-neck, with about $4,500,000,000 a year to the credit of each. (Great Britain's overseas commerce approximates $5,500,000,000 a year.) Germany's fine showing, with two thirds of our population and the merest fraction of our area and resources, is largely traceable to one thing — organization. The distinguished German Colonial Secretary, Dr. Solf, whom I met when he was governor of Samoa, said to me several years ago: "If the United States had Germany's organization, or if Germany had the natural resources of the United States, either of the resulting combinations could wage successful commercial war against all the rest of the world."

"True, Your Excellency," I replied: "and I have hopes that the United States will have Germany's organization before Germany has the United States' resources."

The consummation of the present comprehensive plans of the Department of Commerce for the promotion of foreign trade will leave us well along toward achieving an export organization that shall be equal to Germany's. This organization, encouraged by the high quality of the goods we are sending abroad, and backed by our incomparable natural resources, should indeed place the United States in a position to "wage successful commercial war against all the rest of the world."

A CHEMIST WHO BECAME KING OF AN INDUSTRY

HERMAN FRASCH, THE GREATEST OF OIL-REFINING EXPERTS AND MASTER, THROUGH HIS RESEARCHES AND INVENTIONS, OF THE SULPHUR SUPPLY OF THE WORLD

BY

JOHN M. OSKISON

IN 1887, the oil wells of Indiana, Ohio, and Illinois were producing 30,000 barrels of crude oil daily, worth 14 cents a barrel.

In 1888, after the producers and refiners had adopted the process of purification that was worked out by the late Herman Frasch, the same field was marketing 90,000 barrels a day at $1 a barrel.

In 1903, the United States imported 188,888 tons of sulphur; none was exported.

In 1907, the imports had fallen to 20,399 tons, and 35,000 tons were exported. This reversal resulted from the perfection of Mr. Frasch's remarkable plan for raising sulphur in liquid form from the deposits in Calcasieu Parish, Louisiana, and marketing it.

It is a story of big achievements which these dates and figures summarize. The life of this industrial chemist, German born and American trained, who died while this was being written, was rich in results, scientific and commercial; in its completed record, there is much to stir the imagination. Up to 1912, when illness forced him out of active work, the United States had granted sixty-four patents to Mr. Frasch; most of his important experiments have involved the erection of huge plants; his transactions have mounted to millions of dollars in value; and his discoveries have affected the economic fate of a nation.

At sixteen, Mr. Frasch took up the practice of pharmacy. Very soon thereafter he left Germany (he was born at Gaildorf, in Württemberg, in 1852) in search of the broader opportunities to be found in this country. Landing in Philadelphia, he was presently installed as laboratory chief by Professor Maisch at the Philadelphia College of Pharmacy.

His interest, however, switched from pharmaceutical to industrial chemistry, and at twenty-two Mr. Frasch set up a laboratory of his own. A patent on a process for the utilization of tin scrap was issued to him in 1875; his second patent, granted in the following year, marked his evolution of a process for refining paraffin wax. This was purchased by one of the subsidiary companies of the Standard Oil Company, and so greatly pleased were the purchasers that they induced Mr. Frasch to give up his laboratory in Philadelphia and devote himself to work, under contract, in the petroleum industry.

For nine years, Mr. Frasch gave most of his time and talents to the oil companies, continually improving the refining processes. In the same period, however, he found time to invent a process for manufacturing white lead directly from galena ore; he tackled the problem of improving the processes and apparatus for manufacturing salt. In that period, too, he took out a patent on an ingenious process for making elements for thermal electric generators, and secured two patents on carbons — one an electric light carbon, and the other a product of "wax tailings" for other purposes.

Mr. Frasch's contracts with the oil companies expired in 1885. At the time, he was occupied with one of the big problems of the oil industry — purification of the sulphur-tainted oil of the Canadian fields. He moved to London, Ontario, and there organized an oil company.

in three years he had succeeded in nating the "skunk" odor from sulphur by a cheap and practicable process; the Standard Oil Company bought atents and plant. Using the Frasch its, under the direction of their in- or, whose services they once more en- d, the Standard Oil companies were to convert the immense fields in , Indiana, and Illinois, discovered than the Canadian deposits, from ucers of fuel oil worth 14 cents a l to producers of illuminating oil l to the best product of Pennsylvania. output of these fields jumped almost diately from 30,000 to 90,000 barrels ude oil a day — its price rose from 14 to $1 a barrel.

OW AN INVENTION WAS EVOLVED

rough Mr. Frasch's accounts of the iments that led to success in this ire runs a note of self-confidence, a stion of patient and careful work, n has characterized his whole career. rimenting in his laboratory, he found various metallic oxides were dissolved he sulphur and oil compound; he l that when the tainted oil was satur- with all the metallic oxide it could in solution the odor disappeared; he pushed the experiment further. nal demonstration showed that the ion of metallic oxide to an already ated solution would effect a complete phurization of the petroleum. He had d the problem scientifically; there ined the difficult task of adapting his ss to commercial use.

st, he must select the most suitable ; his tests showed that both scientif- and economically copper oxide was Then he must erect a plant big gh to test his process on a commercial ; if it was to forward the art of oil re- and to open to general use great new ies, the process must be cheap — so that it could be used to put the ur-tainted oils in effective competition the output of Pennsylvania.

make his tests, Mr. Frasch erected oo-barrel still and a roasting furnace eating the copper so that it might be over and over. His still was 22 feet in diameter and 16 feet high, and one of the problems which presented itself was to fit it with a device for keeping the mass stirred; he invented one. Then, after he sold his patents and took charge of the Standard's refining works in Ohio, he had another serious matter to worry about. To handle the Standard's business, he would have needed 160 roasting furnaces such as he had used in Canada. Obviously they would cost too much, and their erection would consume too much time. So Mr. Frasch undertook to erect half a dozen gigantic roasters conforming in capacity to the magnitude of the operations of the refinery in Ohio.

Through each of the great roasting furnaces must run a shaft carrying stirring arms; how to preserve these shafts from warping in the intense heat was for a time a baffling problem. Pursuing his usual calm and self-confident course, Mr. Frasch first tried internal air-cooling. But he had blundered somewhere, for he found that the air forced through the hollow shaft and stirring arms very soon became heated beyond the temperature of the furnace. Hot water cooling proved to be the solution of the problem — and Mr. Frasch devised a way to utilize steam from the shaft and stirring arms (which became in effect water tube boilers) in the operation of the plant.

AN INVENTOR WHO MADE MONEY

There is no starving experimenter or swindled inventor in this story; for his patents and his Canadian plant Mr. Frasch was paid in stock which at the time was selling for $168 a share and paying yearly dividends at the rate of 7 per cent. After the success of his process had been proved, he sold half of his holdings of stock for $820 a share, when it was paying dividends at the rate of 40 per cent. a year. His reward was big, but it was as nothing compared to that of the owners of oil land, the operators and refiners, in the fields of Ohio, Indiana, and Illinois. For them, the inventor had literally created millions of new wealth.

From the apparatus of his laboratory and known conditions, Mr. Frasch began to turn to the consideration of a different

set of problems and conditions. He developed an extraordinary power to visualize geological areas that are hidden deep from any possible view of the eye. Consider the process that he patented for increasing the flow of oil from the wells of the fields of Ohio, Indiana, and Illinois.

In Pennsylvania, where oil occurs in the Devonian sandstone, a successful method of rejuvenating a tired well had been found; it was to drop a charge of nitroglycerine to the bottom and shatter the surrounding rock. That method, however, was not a good method in Ohio, Indiana, and Illinois, where the oil came from a deeper geological horizon, in Silurian limestone. Mr. Frasch tackled the job from another angle; sending his mind down to look over the oil-bearing rock, he concluded that hydrochloric acid, in certain sections, and, in other sections, sulphuric acid poured down the well, which was to be plugged immediately, would presently produce such a pressure of gases as would open numerous minute cracks in the surrounding rock and put the well in communication with new oil cavities.

Here was a hint of the most spectacular success of the long list of successful processes invented by Mr. Frasch, the process for tapping the unique reservoir of sulphur that was discovered in 1865 by oil prospectors in Calcasieu Parish, Louisiana.

A BURIED CRATER FULL OF SULPHUR

A thousand feet below the surface, apparently filling the cone of a great geyser that had been active in the Tertiary period, lies this bed of sulphur, more than 99½ per cent. pure, mixed with limestone in the proportion of 70 per cent. sulphur and 30 per cent. limestone. The bed is nearly circular in shape, more than half a mile in diameter and known to be 1,100 feet thick in places. Directly above it is a stratum of quicksand 500 feet thick; and, until Mr. Frasch undertook the job, this quicksand defeated every attempt made to get at the sulphur. An Austrian company, a French company, and several American companies had tried without success to sink a shaft to the sulphur deposit and to mine it in the usual way.

Mr. Frasch first heard of the Calcasieu Parish deposit and the problem of its exploitation in 1891. He secured a core of the sulphur from one of the wells which had been sunk, gathered all the available data, and set to work on the problem.

"I decided," he said, "that the only way to mine this sulphur was to melt it in the ground and pump it to the surface in liquid form. . . . I realized from the outset that a method entirely different from that employed in the mines of Sicily was necessary for success here, as the class of labor required to operate this mine would demand at least $5 a day, whereas the Sicilian miners were being paid 60 cents a day." There spoke the industrial researcher who had been trained not only to think scientifically but along extremely practical lines, too.

MINING SULPHUR THROUGH A PIPE

Well-drilling equipment was crude then, and nearly nine months were required to sink a ten-inch pipe through 200 feet of the sulphur deposit. (It can be done in three days now.) Inside the ten-inch pipe Mr. Frasch placed another, six inches in diameter, with a strainer at the bottom and a seat to receive a third pipe three inches in diameter. He had the space between the ten-inch pipe and the six-inch pipe packed with sand to brace it against the pressure he foresaw would be produced by the shifting sands and the subsiding rock when the sulphur was removed. It was his plan to force superheated water down between the six-inch pipe and the three-inch pipe, and when the sulphur was melted to pump it up through the three-inch pipe.

Before any possible test could be made, Mr. Frasch had to set up a battery of boilers and superheating cylinders of his own devising sufficient to supply a tremendous quantity of hot water — he had decided that the water must be heated to 335° Fahrenheit in order to melt the sulphur rock. So twenty 150-horsepower boilers were installed.

"When everything was ready to make the first trial," Mr. Frasch said, in recalling that day in which either complete failure or conspicuous success would be his

portion, "we raised steam in the boilers and sent the superheated water into the ground without a hitch." Can you figure what a hitch at that moment would have meant? Mr. Frasch explained: "If for one instant the temperature required should drop below the melting point of sulphur, it would mean failure." It is no wonder that he and his helpers watched anxiously beside the pumps that were forcing the hot water down. Hour after hour they watched, and the steady stream went down without interruption.

"SHE'S PUMPING!"

After twenty-four hours of steady forcing, Mr. Frasch gave the word to start the engine attached to the "sulphur line." A strain was noted; it increased; the engine was doing work. "More and more slowly," he recalled, "went the engine, more steam was supplied, and at last the man at the throttle sang out at the top of his voice, 'She's pumping!' On the polished rod of the pump appeared a liquid, and when I wiped it off with my finger I found my finger covered with sulphur.

"Within five minutes, the receptacles under pressure were opened, and a beautiful stream of the golden fluid shot into the barrels we had ready. After pumping for about fifteen minutes, the forty barrels we had supplied were seen to be inadequate. Quickly we threw up embankments and lined them with boards ready to receive the sulphur that was gushing forth; and since that day no further attempt has been made to provide a vessel or mold.

"When the sun went down we stopped pumping until we could prepare to receive more of the liquid in the morning. The material on the ground had to be removed, and willing hands helped to make a clean slate for the next day."

You get in this description of Mr. Frasch's one of the genuinely thrilling pictures of the triumph of a successful inventor. A friend of his, appreciating to the full Mr. Frasch's power of mind and the range of his genius, once pointed to a half length portrait of him.

"An impressive looking man, isn't he!" said this friend, and the rounded, dome-like head and the cool wisdom of the eyes in the painted presentation bore out the suggestion. Then the friend laughed, in affectionate memory, and held a hand out level with his shoulder.

"He's about this tall," said he, "and fat! But you don't think of that when you know Mr. Frasch."

AN INVENTOR'S HOUR OF TRIUMPH

After working far into the night to clear away the piled-up sulphur, which began to harden almost immediately upon falling from the pump, Mr. Frasch's helpers went home and left him alone. Alone, he took that first heady taste of success which can never be tasted a second time.

"I mounted the sulphur pile," confessed Mr. Frasch, "and seated myself on the very top. It pleased me to hear the slight noise caused by the contraction of the warm sulphur. It was like a greeting from below — proof that my object had been accomplished."

Of course, Mr. Frasch's project had become known long before, but it had drawn out only skeptical comments. Sitting there in the night on his pile of cooling sulphur, he realized the experimenter's supreme joy, that of achieving a dream.

Between his first experiment and the final working out of the plant on a big scale lay a good many years of hard fighting against minor difficulties. You remember, he became interested in the problem first in 1891; it was twelve years later before Mr. Frasch's company was a commercial success. You see what sort of calm patience is needed by the industrial chemist.

The chief reason for the long delay in putting the sulphur plant on its feet financially was that during most of the time it was being developed Mr. Frasch was giving the better part of his services to the oil people. He could visit it only at long intervals; and every fresh problem which arose waited upon his ingenious and exploring mind for solution. Every small change and needed improvement required a long time and great expense to effect, for this experiment station, you will observe, was of truly magnificent dimensions.

Once pumping was well under way,

there arose the puzzle of how to save the pipes from being crushed and wrenched as the sulphur and lime rock subsided to fill up the cavities that were left by the melted and raised sulphur; to prevent this, a 12-inch pipe with telescope joints was sunk outside the 10-inch pipe and the space between was stuffed. It became necessary to replace with earth the thousands of tons of material that were pumped up, and a dredging plant with a capacity of 4,000 tons a day was installed.

At one time a well ceased producing while the pipes were still intact. Mr. Frasch was called to find an explanation; he worked out the theory that "wild waters" entering the melting zone had proved to be so extensive that they lowered the temperature of the superheated water below the melting point. So Mr. Frasch proceeded to "seal" the melting zone away from the harmful flow by pumping sawdust down until it filled the crevices. In five days, he forced thirty carloads of sawdust down, and after that was done the well produced 39,000 tons more before the subsiding rock crushed it.

SUPERHEATING A MINIATURE OCEAN

Year by year, the plant in Louisiana became a thing of huge dimensions — and it grew in physical size far faster than its commercial success warranted. To supply the superheated water for the eight wells Mr. Frasch had sunk, he erected eight batteries of boilers — 130 in all, ranging in horsepower from 150 to 300 each — their work being to heat to 335° Fahrenheit 7,000,000 gallons of water a day. When they were all in operation, 5,600 barrels of fuel oil were consumed daily. The huge cylinders in which this daily ocean of water is superheated were devised by Mr. Frasch. So adequately did he meet and solve the practical requirements of the plant that now the only limitation on production is the demand of the market.

From the first day of pumping, the liquid sulphur has been poured into the centre of bins; from that point it flows slowly to the sides and hardens. These bins have become literal mountains of sulphur. As the sulphur flows, spreads, and rises, the boards are raised, sometimes as high as sixty-five feet; and when the stream is diverted to a fresh bin there remains a block of hard sulphur 150 feet wide, 250 feet long, and 65 feet high. Railroad tracks are laid alongside, the boards are taken off, the sulphur block is broken up by blasting, and grab buckets, operated by a steam crane, load a 35-ton car in fourteen minutes. For export, the loaded cars are run upon the company's dock at Sabine, where a 7,500-ton steamship may be loaded in twelve hours.

IN CONTROL OF THE WORLD'S SULPHUR

It was not until 1904 that Mr. Frasch's company sent its first cargo of sulphur abroad. That shipment was his notice to the world that he held the future of the sulphur industry in his hands.

Until Mr. Frasch entered the field, the United States had produced less than one half of one per cent. of the sulphur consumed in this country; Sicily and Japan supplied us, and for years the sulphur mine owners of Sicily had enjoyed a practical monopoly. As far back as 1833, the British fleet appeared in the Bay of Naples to enforce Great Britain's demand that the Italians rescind a sulphur monopoly agreement that they had made with France. In 1895, a company had been organized by English capitalists to control the output of Sicilian sulphur; it worked with the sanction of the Italian Government under a five-year agreement, with the privilege of a renewal for another five years. For years this company made a great deal of money, paying dividends on its common stock of 50 per cent. a year and laying aside a big reserve for contingencies.

"The contingencies arose," said Mr. Frasch, "in the form of the Louisiana production. The English company began to receive complaints from its agents in America that business in the West had fallen off on account of sulphur furnished from a mine that was no mine at all, but where the sulphur was pumped out of the ground ready to ship. The English company, as well as the Sicilians, declared that this was impossible."

According to ancient habit, the English company proceeded to put the new competitor to the test; it contracted to deliver in

:a 20,000 tons of sulphur at just cost of production. Mr. Frasch ıcross to London to talk with the ; of the English company; he wanted if the Englishmen would force him ıte a price under their cost of pro- n in order to keep the American — a trade which the Louisiana ny needed badly.

ıON THAT COST A MILLION DOLLARS

'as perfectly frank," Mr. Frasch said, xplained our position fully. A great ıf enthusiasm for this 'American ıg' met me; I was told that they go their way and I could go mine.

I had arranged for the sale of our r in the various European countries :nowing the production cost to my titors, I succeeded very shortly in strating that Louisiana sulphur ɔt a swindle. I found out after- that the lesson had cost the English ny about $1,250,000."

of the simple little demonstrations ere undertaken by Mr. Frasch to sh the fact of his dominance of the r industry was to pump six wells aneously for two months. In that he produced 122,000 tons — more he whole world used in that period. fighting for a time, the English ny went out of business, leaving an ous accumulation of unsold sulphur : 500,000 tons) to be thrown on the t for what it would bring.

to market this huge accumulation have had a disastrous effect not ın the producers but also on the ırmy of Sicilian workmen who, like tions of their ancestors, had de- l upon the sulphur mines to furnish yment. For Mr. Frasch to exercise wer would mean the shutting down Sicilian mines, starvation for thou- of poor men in Sicily, and probably tion and bloodshed.

Frasch and his associates knew this; called the Italian Government's ion to the facts, whereupon Italy decided to form a trust to take over the stored supply of the English company and to prevent the sale of the Sicilian output below the cost of production. The Government practically undertook to finance the whole Sicilian industry. Mr. Frasch's company coöperated generously with Italy, and the situation was saved.

In 1912, Mr. Frasch received the Perkin medal, which typifies in America the highest recognition an industrial chemist can win from his fellows. In his speech of presentation, Professor Chandler referred to the company that was organized and controlled by Mr. Frasch in these words:

"At present it supplies this country with sulphur and might supply large quantities to European countries. Fortunately, the company is owned by a few broad-minded and large-hearted men who could not be induced to bring starvation and ruin upon the two hundred and fifty thousand people who are dependent for existence upon the mining of sulphur in Sicily."

To the mind and imagination of Mr. H. G. Wells, the future of the world seems to lie with the scientists. His prophecies of a civilization that is readjusted involve the chemist-discoverer who comes quietly out of his laboratory to announce that to-morrow industrial war must cease; from his crucibles and test tubes he brings his irrefutable arguments. In following the career of Mr. Frasch, you find more than a little of such prophecy translated into facts of contemporaneous life.

Mr. Frasch's achievements have been achievements of the constructive imagination, of the mind, which, fortified with scientific knowledge, projects itself beyond the things that have been done to build new things. Like all great inventors and all great scientists, Mr. Frasch has been very much of a poet, turning dreams into realities — not, indeed, into words, but into the mechanism of daily life that for all the future will make it easier for men to live in comfort and that will add permanently to the self-confidence of mankind.

PROFIT SHARING FOR SAVINGS

MR. WILLIAM COOPER PROCTER'S SUCCESSFUL PLAN UNDER WHICH HUNDREDS OF EMPLOYEES THAT MAKE LESS THAN $1,500 A YEAR IN WAGES HAVE ACQUIRED STOCK THAT IS WORTH THOUSANDS OF DOLLARS

BY

JANET RUTH RANKIN

IF YOU should see a workman whose weekly wage was $15, and were told that he owned $10,000 worth of stock earning 7 per cent. yearly, your explanation of the fact would probably be that he had a rich and dead relative. It would not seem possible that he could save such a fortune on $15 a week. But this has actually been done, not once, but several times, under the profit sharing plan of Procter & Gamble, soap manufacturers, of Cincinnati, O.

A man who earns $15 a week cannot save much. If his wages are raised to $18, he can spend a little more. The chances that he will save, even in that event, are small. Most profit sharing plans give straight money dividends. This helps the employee to spend. It does not ordinarily help him to save, unless by a roundabout and paternalistic supervision of his expenditures.

Mr. Procter wishes his men to save for themselves, for their future needs, for their families, for a better standard of living for themselves and their children. He reasons that a bank account is more efficacious toward true self-respect and progress than any amount of welfare work could be.

He does not force the employees to save. By the profit sharing plan, saving is encouraged. And the eleven years since it was introduced have brought results commensurate with the idea. To-day the employees own about $3,000,000 in the company's stock. Labor troubles in the works of Procter & Gamble are unknown.

In 1837 a Mr. Procter started a business of making soap. At his death the business was passed on to his son. His grandson was William Cooper Procter, the present head of the Procter & Gamble Company.

In 1886 William Cooper Procter was graduated from Princeton University. He was not a frivolous college youth. His thoughts turned toward the further upbuilding of the business that was already an institution in the family. At his graduation he went into that business — went in as a common laborer in blue overalls, at a laborer's salary, and with an immense determination to get at the facts of life as they appeal to the workingman.

Now a young man just out of college usually has some ideas. They are, however, usually more or less impractical — the hothouse variety. It takes a period of struggle and disillusionment before he finally works his theories into "practical business methods."

William Cooper Procter had theories in plenty. He had made a special study of economics in college, and had the results all tabulated in his mind, awaiting an outlet. That outlet came in the form of the Ivory Soap Works, and in three weeks, urged by theories and experiences, he was advising the firm on labor methods.

Only here came the difference between Mr. Procter and many other young college men. He had taken the trouble to get the point of view of the employee before he began advising about methods of treating the employee.

Perhaps it was mostly luck that won for young Procter his hearing, for the situation at the plant happened to be complicated. A new building was going up, and there were rather serious incidental labor troubles. The employees of the company were discontented, and the management was worried. But the tall young man, with the stamp of the college not worn off, gave them an idea.

Mr. Procter had a theory that the

workmen did not get their just share of the profits of the business in which they worked. That is, they did not get any of the profits; but they ought to. Their share, according to Mr. Procter's theory, was that proportion of the earnings of the business which their labor bore to the total cost of production. For example, if labor is one third of the total cost of producing a hat, then labor ought to get one third of the profits on that hat. Give them that proportion of the profits to which their labor entitles them, said Mr. Procter. Be sure that you are scrupulously fair with your men, and the labor problems will take care of themselves.

WHY DIVIDENDS ON WAGES FAILED

The firm considered and consented. They found that the cost of labor amounted to 12 per cent. of the total cost of production. They paid the workmen, all of them, 12 per cent. on their wages yearly; and all was to go merrily as an economics text book.

Two years later the company became a stock corporation. The profit sharing plan had to be adapted to the new organization. The firm decided to set the dividend on wages at the same figure as the dividend on the common stock of the company. It happened to come out at 12 per cent. again.

This plan did not seem to do any permanent good. The annual dividend that the workman received did not make him cease grumbling. And, after all, the profit sharing did not make any great difference in the prosperity of the men. They simply raised their expenditures to fit their increased earnings, and the result remained the same — except that they could not see why the dividend should be called a dividend and not simply an increase in pay. The company took money out of one pocket and called it pay, they said; then took money out of the other pocket and called it dividends. Why not call it all wages?

This is a reasonable point of view, and for the employer who wishes merely to divide his gains with his employees the system of increasing wages is as good as any other. But Mr. Procter was not content to increase his employees' wages. He wished also to help them to make of themselves better and more solvent citizens; somehow to make the workmen's opportunity to put away money for the future more nearly equal to that of the officers of the company. The profit sharing, as he practised it, was not doing this.

THE EVOLUTION OF A BETTER PLAN

While Mr. Procter was in search of a new plan one of his men came to him and asked for stock in the company. Mr. Procter was pleased with this show of confidence in the business— although certainly the business deserved it — and offered to make it easier for the workman to acquire the stock. The next day brought another workman on the same errand. Mr. Procter helped that man, too. Then he began to hear of others — men who had already bought stock on their own responsibility, and who were proud of their investment. To be sure, the number of stockholders among the workmen was small. Men who work hard all day in a factory are not likely to spend much time thinking of new ways to spend their income, even though that expenditure may mean a possible increase in income later. But there were a few, and that fact gave Mr. Procter his idea for a new plan of profit sharing. It was time for a change in the method of remunerating employees, anyhow. The old scheme was pretty well outgrown. And so the new plan of distributing the profits was evolved.

As it stands to-day, the profit sharing system of Procter & Gamble is purely voluntary. That is by no means the least of its virtues. Workingmen, in America at least, do not hold themselves candidates for charity, and they fight shy of paternalistic schemes that are planned by those above them for their benefit. Procter & Gamble do not force their plan upon their men. There is not even any definite advertising of the scheme either in or out of the factories. The men who share its benefits form centres of enthusiastic information concerning it, and it is through these that its work is made known. It has had a steady growth in favor and usefulness.

This profit sharing plan is a combination of the former system of wage dividends and of the stock ownership plan. To enter into the scheme, the employee purchases stock in the company equal in value to his wages for a year. He must pay down at least 2½ per cent. of this, and go in the company's debt for the rest.

THE CASE OF JOHN SMITH

A definite case may help to make the workings of the plan clear. Take the case of John Smith, who is employed at a yearly wage of $1,000. He buys $1,000 worth of stock in the Procter & Gamble Company, and pays down for this, out of his own pocket, $25.

At the end of a year, John Smith receives a dividend of 16 per cent. on his wages, or $160, which is automatically applied on his debt to the company. His stock also bears interest at 7 per cent. Three sevenths of this last must go as interest (at 3 per cent.) on his debt, and the remaining amount, or $40, is also turned in as part payment for the stock. This reduces the debt to $775. It is reduced another $40 by a direct payment by John Smith himself, who must pay this amount on his stock to prove his continued interest in the plan.

Altogether, at the end of the first year, John Smith is not immediately better off. He has put $65 in cash into the plan, and he still owes $735 to Procter & Gamble. He has the stock, however; and in the present state of enlightenment of the John Smiths of the working world, that piece of paper represents a very real value.

If he should leave the employ of the company before his stock is entirely paid for, he would have to sell it back to the firm. At the point where we left John Smith, he would get $265 for it — not such a bad return for an investment of $65. However, John does not usually leave. That would be folly, under the circumstances.

At the end of the second year, the same amount comes in — $160 on the debt and $70 on stock. About $22 of this is interest on the debt. John Smith must again put in $40 of his own. Now the *indebtedness* stands at about $487.

Of course, there is nothing to prevent John from paying the debt more rapidly by putting in more of his own money, and, indeed, this is very often done.

The third year sees the debt reduced to $232, and the fourth year sees it wiped out entirely, by John's putting in only $9 of his own. And now the stock is John's absolutely. The interest that it pays, and the dividend on his wages, are at his own free disposal.

$1,000 FOR $154

And this wealth of $1,000, invested in stock that pays 7 per cent., is his as a result of $154 saved from his weekly wages of $19, over a period of four years. That means about $3 a month saved — not an impossible thing, you can see. And in addition to his $1,000 worth of Procter & Gamble stock, so long as he remains with the company he receives a yearly dividend of 16 per cent. on his wages. At the end of five years' service, this dividend is increased to 20 per cent. and, after ten years, to 24 per cent. After five years, John may buy $250 more of stock, and after ten years, the same amount in addition. Almost all the men who go into the plan increase their holdings as it is permitted.

Then, too, there is nothing to prevent John Smith from investing, through the company as brokers, still more of his earnings in the stock of Procter & Gamble. This is sold to him at the market price, on a small deposit, but he must pay 35 per cent. of the total before he can sell it again — this last to prevent his speculating on margins, as John Smith, like many of his richer brothers, is prone to do.

This plan applies only to those workmen that buy the stock. There is no dividend on wages for the rest. Procter & Gamble reason that buying the stock means confidence in the business and a willingness on the part of the worker to identify his financial future with that of the company. This confidence means a right to share in the profits of the business.

Furthermore, the plan applies only to those men who earn less than $1,500 a year. Those men who earn more than that sum are considered as individuals in the prob-

advancement. And lest the man arns $1,600 should in reality be than the man who earns $100 less, in salary above $1,500 is always a $2,000.

stock belongs absolutely to the /ee. If he dies, it can be willed It can be mortgaged or sold at ne after it has been fully purchased. lan does not in any way give the ny a "strangle hold" on the work- ırough his pocket.

SOME BENEFICENT RESULTS

' has the Procter & Gamble profit ; scheme worked out? Mr. Procter ıked for results. There are, roughly ng, 4,500 employees of the company. se, about 3,000 are earning less than a year. Some of these are Negroes ıre employed in the company's ern plants and who are too ignorant er upon the profit sharing plan. :ally every employee at Ivorydale, ere the main works are situated, is a pant in the plan. And of these ıany are drawing the highest interest ges — 24 per cent. This fact is :ant, for an employee is an asset in ısiness, and a plan that will keep 's for years is a good one.

results to the laborers are obviously Increased property means increased pect the world over, and greater : means a higher standard of life. ıles are plentiful to prove that men ıeen stimulated to better things by ın, which presents to them a tangible unity to help themselves. Henry · came into the employ of the com- ıs a more than incipient drunkard. an who stood next to him had just into the full ownership of his first worth of stock. He could talk of g else. Henry succumbed to the ɔf his enthusiasm. He became a older in the company. With the rst payment came a sense of security nancial worries — those things that many a poor workman to drink — real reason for saving kept Henry from old haunts. Now he needs ink cure — he has a substantial ccount.

Thomas M —— was a wiper in the machine rooms. An accident cut off his arm. According to custom in such cases, he was made a watchman, but his salary was cut from $21 a week to $12. What such a loss of income means to a man with a family, only those who have tried to cut expenses in two can guess.

But Procter & Gamble could help Thomas in two ways. A mere gift would have robbed the man and his family of that self-respect which is compatible only with independence. In the first place, a pension fund, maintained by the company and the men themselves in coöperation, raised Thomas's wages back to their original figure, $21. In the second place, Thomas entered the profit sharing plan, managed to save something every month, and now this one-armed laborer is the owner of $12,000 worth of 7 per cent. stock. No "Help me, I'm a cripple" sign for Thomas M ——; and his little family go forth with the education to which they are entitled, and add to the real improvement of the world.

IS IT A GAMBLE IN STOCKS?

It may be objected to the Procter & Gamble plan that it is in reality a gamble in stocks, passed on to the workman, and coming out all right in this case, but without any real guarantee of returns. Suppose the stock of the company had deteriorated, instead of rising, as it has, in market value? The size of the total of the men's property is largely due, it is true, to the increase in value of the stock. Suppose a company should try the same plan and then fail financially, with all the savings of the workers?

The answer to this is to be found, not in the general, but in the particular, instance. As I said, there are almost as many forms of profit sharing as there are firms that practise it. What will fit one organization will not do for another. Investment in the stock of a shaky concern on the part of the employees certainly ought not to be allowed. But the Procter & Gamble trade was practically secure at the time when Mr. William Cooper Procter took hold. It is an old and established business, with no likelihood of fail-

ure. And even at that, the workmen are protected against possible loss by a guarantee on the part of the company to buy back, at any time, stock bought under the plan, at the price the employee paid for it. This is undoubtedly a necessary part of such a scheme.

And what of the advantages to the employer? They are not the ends, but merely the incidentals, of the scheme — the more or less intangible, but nevertheless real, benefits that come from a force of willing laborers. The employees of Procter & Gamble show an interest in their work, and their efficiency is high. They are ordinary workmen. Workmen, like capitalists, are moved to action by a consideration of their own economic advantages. These men have a motive for taking extra care of machinery, for eliminating waste; and they have no reason for fighting their employer for rights, real or imaginary. Mr. Procter runs an open shop, but has had no dealings with the labor unions that resulted in hard feelings on either side.

Profit sharing represents the democratic idea in the relation of employer to employee and of employee to the business. And the democratic idea is the only idea that will work out in this democratic country. Welfare work represents the other side — the monarchical relation.

THE WOMEN'S VIEW OF IT

A large number of women are employed in the Procter & Gamble works. Their attitude toward the profit sharing plan is interesting. Several went into it at the start, in 1903. One, a stenographer, now owns a tidy fortune of more than $24,000, and gets, besides, her dividends of 24 per cent. on her yearly wages of $1,200. Being a stenographer under these conditions would appear to be better than being a school-teacher.

But in general — well, the women at Ivorydale are no more emancipated than their sisters of Boston. They do not think first of all of earning a stake for the future. They expect to get married, if they think at all. More often, their families, who take their wages, think for them. The heads of the families are not anxious to forego any amount of the girl's earnings for a benefit that will bear fruit four years later, and that probably at that time will pay dividends to the girl's husband.

So the girl, especially if her chances of stopping paid work for housework are good, and if her intelligence is not far above the level required for her work, is not encouraged to enter the scheme, and ordinarily does not do so. After she has reached the age of twenty-five, or thereabouts, she generally enters it on her own initiative, for obvious reasons.

The workmen who participate in the Procter & Gamble profit sharing system do not take a very great part in the management of the business. Their total stock amounts to about 3 per cent. of the stock of the company. Mr. Procter has offered them a seat on the board of directors for a representative, but they are not anxious to take it. "And after all, why should they be?" asks Mr. Procter. "I own stock in half a dozen companies myself, and I don't usually bother about the details of their management. I have confidence in the men who are running them, and I need the time to see that my own work is going well. My men have confidence in me, and the running of the business doesn't interest them. What they want is the certainty of a check for dividends at the end of the year. That I can promise them. My part is to see that it is earned, and earned fairly."

Of course, a very large part of the accumulation of money by the employees of Procter & Gamble has come from the very large increase in the value of the stock, from $350 in 1903, when the plan was started, to $575 at present. The business success of the Procter & Gamble Company has accompanied the rise in financial well-being of a large part of their body of employees. How much these two are interdependent, it would be impossible to ascertain. But certainly it would not be too much to say that the coöperation of the employees has formed a very considerable part of the firm's success — a coöperation due to the plan under which they work — and to the fairness and honesty with which they are personally regarded by Mr. Procter himself.

TO REMAKE THE APPALACHIANS

A NEW ORDER IN THE MOUNTAINS THAT IS FOUNDED ON FORESTRY—WHAT THE GOVERNMENT'S APPALACHIAN FORESTS MEAN TO THE PEOPLE IN THE MOUNTAINS AND TO THE MILLIONS WHO WANT RECREATION

BY

WILLIAM L. HALL

THERE is a new force at work remaking conditions in one of the most beautiful mountain ranges in America; protecting the Appalachians from fire, bringing back to the mountain people a chance for comfort and prosperity, connecting them with the outside world, and at the same time opening these mountains to the many thousands of people of the Eastern seaboard and Middle West who wish to escape to the high places in summer. The United States Government has bought nearly a million acres of land in the Blue Ridge, the great Smokies, and the other neighboring ranges.

In 1901, Secretary of Agriculture James Wilson stood on the summit of Mt. Mitchell, the highest peak in the Eastern States, and surveyed the successive mountain ranges that are visible from that commanding point. Congress had authorized an investigation to determine the wisdom of establishing a national park in the Southern Appalachians, and the Secretary was there to look the country over for himself and to advise with his subordinates on the project. That summer the forests and the watersheds of a large area of the Southern mountains were carefully mapped and the Secretary on his return to Washington made a report which became memorable for its comprehensive grasp of the Appalachian situation and for the broad programme of conservation which was recommended.

But Secretary Wilson's trip of inspection was not the first step in the Appalachian movement. In the fall of 1899 a little

A PANORAMA OF PART OF THE MAGNIFICENT FOREST IN THE APPALACHIAN IN WHICH THE GOVERNMENT HAS BOUGHT NEARLY A MILLION ACRES FOR

group of men and women at Asheville, N. C., started the ball rolling through the formation of the Appalachian Park Association. They knew the Appalachians and they were determined that the rest of the country should know them, too. They wrote letters to many people, they memorialized Congress, and the results were an appropriation for an investigation and Secretary Wilson's inspection and report. Thus began the movement for Government-owned forests in the Appalachians.

It is now nearly fifteen years since this movement was set on foot, and the Government is just rounding out its first million acres of purchases, of which 850,000 acres are in the Southern Appalachians. Following the first efforts, twelve years of agitation and education as to the Appalachian region were necessary to arouse public support. The variety, richness, and perishableness of its resources had to become widely known; likewise the complete breakdown of the social and industrial life that had been attempted there. Hearing after hearing was held by Congressional committees. Many bills were considered in Congress but none became a law. Meantime the National Forests were segregated from the public lands in the West and rules and regulations for their administration were worked out. Many states took up forestry but the Southern Appalachians continued as they had for 150 years in the hands of the mountaineer, only in the early days the iron and other industries and the agriculture of the mountains could compete with the efforts of other sections. In the last half century the mountains have fallen behind and the mountaineer has become poverty-stricken and isolated. Increasing information and public sentiment finally overcame all opposition in Congress and on March 1, 1911, President Taft signed the bill that is now popularly known as the Weeks Law by which a National Forest Reservation Commission was established,

TAINS, THE MOST LUXURIANT HARDWOOD GROWTH IN THE UNITED STATES
NAL FORESTS STRETCHING FROM WESTERN MARYLAND TO NORTHERN GEORGIA

whose direction an appropriation million dollars was to be expended in urchase of lands.

e law is not limited to the Appala- s. It is restricted to lands which pproved by the Geological Survey as important for the protection of able streams and to those states e legislatures have granted authority e Federal Government to acquire for this purpose.

thin these limitations the Secretary griculture is authorized to locate, ine, and recommend for purchase lands as in his judgment should be red. His recommendations are made e National Forest Reservation Com- on, of which he is a member, and this nission is authorized to approve lands urchase and to fix the price to be paid. ine and New Hampshire and the lachian states south of Pennsylvania he only states thus far which have ed authority to the Government to acquire lands for this purpose, and purchases are therefore limited to them, and by far the greater areas have been purchased in the Southern Appalachians.

As argued by its earliest advocates the Appalachian movement was a plan to establish a great National Park. As advocated by Secretary Wilson and the Forest Service it was a scheme to establish a series of National Forests with the threefold object of timber conservation, water regulation, and recreation grounds, with other incidental benefits. As finally authorized by Congress the plan is a project to protect the headwaters of navigable rivers, with other benefits to be considered as incidental. As the undertaking actually works out on the ground it is a movement to remake the Appalachians, transform the unfortunate social and industrial conditions which have long prevailed there, and set the region to performing the function for which it was clearly intended. Stream protection, forest conservation,

A NEARER VIEW OF THE FOREST

WHICH WILL BE PRESERVED AS A PERENNIALLY PROFIT-YIELDING INVESTMENT FOR ALL TIME THROUGH SCIENTIFIC LUMBERING AND ADEQUATE FIRE-PROTECTION

GIANTS OF THE HARDWOODS

THE FINEST HARDWOOD FORESTS THAT HAVE SURVIVED THE ERA OF RECKLESS LUMBERING RE IN THE SOUTHERN APPALACHIAN MOUNTAINS, AND THEY CAN BE LOGGED INDEFINITELY IF THE ORK IS DONE UNDER PROPER SUPERVISION

human recreation, and social welfare are the important elements in the plan.

With an appropriation of two million dollars a year for the years 1912 to 1915 inclusive, the plan is being worked out on a scale commensurate with the money that is thus available. There are eighteen purchase areas in the Appalachian region, and purchases by the Government are under way in thirteen of them.

The opponents of the Appalachian Forests in Congress pictured many difficulties in the way of their creation. All these difficulties have been encountered. It was pointed out that the lands would be found in the hands of speculators who would hold up the Government for exorbitant prices. Some tracts have been found in the hands of speculators who offered them at four or five times their value. But these lands

AN UNPROFITABLE USE OF THE FOREST

VALUABLE CHESTNUT TREES GIRDLED BY HUCKLEBERRY PICKERS TO GET THE BARK TO MAKE "TOOTS" IN WHICH TO CARRY BERRIES, AN IMMEDIATE ECONOMY BUT ULTIMATELY AN ABSURD EXTRAVAGANCE BECAUSE THE GIRDLING RUINS THE TREES

A RESULT OF IRRESPONSIBLE MANAGEMENT

ABOUT TWO THOUSAND CORDS OF PULP WOOD BURNT, ALL THE YOUNG TREES DESTROYED, AND THE SOIL BADLY DAMAGED BY A FIRE THAT WOULD HAVE BEEN STOPPED IF THE FOREST HAD BEEN PATROLLED BY RANGERS

ıave not been considered. If lands can-ıot be bought at reasonable prices they ıre not considered at all. At the start some speculators tried to go ahead of the Government and take options on the land and turn it over at a materially increased

THE KIND OF USE THAT THE GOVERNMENT ENCOURAGES

A PORTABLE SAWMILL OF THE TYPE WHICH THE FOREST SERVICE ENCOURAGES IN SOME PLACES TO PUT THE MERCHANTABLE TIMBER INTO THE HANDS OF THE PEOPLE

AN ILLICIT WHISKY STILL IN THE SOUTHERN MOUNTAINS

WHERE THE LACK OF FACILITIES FOR DEVELOPING THE RICH RESOURCES OF THE FORESTS HAS CAUSED MANY OF THE PEOPLE TO BECOME POVERTY-STRICKEN AND HAS DRIVEN SOME OF THEM TO LAWLESS METHODS OF MAKING A LIVELIHOOD

price. To meet this situation the Secretary of Agriculture announced that no optioned lands would be considered. The option scheme therefore fell to pieces and no further trouble in that direction has been encountered.

It was said that titles to the mountain lands were in such a tangle that the Government could make no headway. Indeed, the title situation is about as bad as a generation of men could have made it had they started out for the purpose of entangling the titles. Most of the lands in the Appalachians have been in individual ownership for nearly a hundred years. The states which held these lands had neither a survey system nor a system of protection to the individual owner. In general a grant system was in effect. A man could make application for any number of grants and these grants could be described in almost any way. Presumably the description always rested upon a survey, but the surveys were often omitted. The old grant descriptions usually start with some tree on a slope of a certain stream and then run by metes and bounds to other trees or stakes and finally back to the starting point. Frequently only one tree was marked. All other corners were stake corners and the stakes were never set. Recently one of the surveyors in examining old grants came across one in Macon County, N. C., which simply started in a brook. I am told of another grant which began at a white cow on a mountain side. Needless to say, the white cow cannot now be located. At my hand at this moment is a case in Bedford County, Va., where a man presents a chain of title running through fifty years for a plot of 321½ acres of land which has no description at all. It is simply 321½ acres of land. The man thinks he owns it and feels sure

A RUINED INDUSTRY OF THE APPALACHIAN REGION

ONE OF THE MANY IRON FURNACES WHICH, BEFORE THE DISCOVERY OF THE VAST ORE BEDS OF MINNESOTA, MICHIGAN, AND ALABAMA, MADE THESE MOUNTAINS THE CENTRE OF A PROFITABLE INDUSTRY THAT EMPLOYED THE INHABITANTS AT GOOD WAGES

THE LAST STAND OF A DISCOURAGED FARMER

WHO LOST A CHARACTERISTIC BATTLE AGAINST POOR SOIL AND THE LACK OF A MARKET FOR HIS PRODUCE, WHEREAS HE SHOULD HAVE HAD AN OPPORTUNITY TO UTILIZE HIS VALUABLE TIMBER

he has lived on it for a number of years, but it has no boundaries. The same land is often included in four or five or more grants. If certain conditions were complied with, the original grant holds; if not, some other grant holds. A map of the grants, such as it has been necessary to make in order to understand the ownership situation, looks more like a puzzle than anything else. In one case an 80-acre tract is affected by six separate grants. Beside it are two small plots of vacant

NATURE PROSPERING WHERE MAN FAILED

A NEW STAND OF POPLAR SURROUNDING THE DESERTED CABIN OF A MOUNTAINEER

WHERE THE FOREST MEETS THE PLAIN

THE KIND OF FARM LANDS THAT THE GOVERNMENT EXCLUDES FROM ITS PURCHASES BECAUSE IT IS OF MORE USE TO THE PEOPLE UNDER PRIVATE OWNERSHIP

land that are not covered by any grant. To complicate the situation further these lands have never been considered of much value until the rising price of timber a few years ago brought them into the market as timberlands. The ownership has therefore been very loose at all times. Owners might fail to pay taxes and years pass before any tax sale was made. Two or more owners may for years have been paying taxes upon the same land. County lines are so indefinite in some places that it

Photographed by H. H. Gibson

PROSPECTING FOR THE GOVERNMENT

FOREST SERVICE OFFICERS ON A TRIP TO LOOK OVER LAND FOR NATIONAL FORESTS

is difficult to tell in what county some of the lands are situated. Lacking accurate surveys, accurate maps of the plots were impossible.

Into this maze of indefiniteness of boundaries and titles the Government has now entered. Each step that it takes must be toward straightening out the difficulties. The Government acquires land only after an accurate survey has been made.

Next is the title examination. Rarely is a tract found with an unbroken chain of title without dispute or conflict. In case no defects are brought to light the tract can be purchased. For a rather large proportion of the lands, however, the title defects prove to be of such nature that they are hard to overcome. In these cases title is now being taken through condemnation, the owner generally agreeing to accept the same price by condemnation as he would receive through purchase. In working out the boundaries and titles to a definite basis the Government is adding value to the lands, and any tract which the Government acquires that has gone through this procedure is more valuable than it was before.

This is only the beginning. When the Government acquires lands in any locality, it at once begins certain steps of development. First come trails.

There are two great difficulties with the region so far as the outsider is concerned: he cannot get into it; and he cannot live after he gets there. This overstatement is necessary duly to emphasize the point that the region is inaccessible and that the living conditions are bad.

Accessibility is an absolute necessity as soon as governmental ownership begins. Funds are not available with which to build roads, therefore trails are built for the present. On the lands that were acquired before July 1, 1913, about 250 miles of trail have been constructed. These are always for the purpose of opening up the less accessible portions of the region. After trails come telephones, because of the need of quick communica-

A FIRST STEP IN OPENING THE FOREST TO PUBLIC USE

A TRAIL THROUGH A LAUREL THICKET. ALREADY ABOUT 250 MILES OF TRAIL HAVE BEEN BUILT INTO HITHERTO INACCESSIBLE PLACES

A ROAD THAT WILL CREATE INDUSTRIES

HIGHWAYS OF THIS QUALITY OPEN THE WAY TO MARKET FOR THE PRODUCTS OF THE MOUNTAINS AND OPEN THE MOUNTAINS TO THE MILLIONS WHO NEED RECREATION

ion by the forest officers with all parts of he Government's land. Primarily both trails and telephones are intended for the prevention of forest fires.

ONE CAUSE OF THE BACKWARDNESS OF THE MOUNTAINEERS

WITH SUCH ROADS AS THESE AS THE ONLY AVENUES OF TRAFFIC, THE PRODUCTION OF CROPS OR LUMBER HAS BEEN LARGELY WASTED EFFORT

A MOUNTAIN TOP MEADOW

OPEN SPACES LIKE THIS ARE COMMONLY FOUND ON THE VERY TOPS OF THE MOUNTAINS. UNDER THE ENCOURAGEMENT WHICH THE GOVERNMENT OFFERS TO CAMPERS, THE APPALACHIAN FORESTS WILL ULTIMATELY BECOME AN ENORMOUS VACATION GROUND, WITH FACILITIES FOR AN OUTDOOR LIFE IN SUMMER FOR MILLIONS OF PEOPLE

In the Southern mountains fires occur not as great conflagrations, as in the coniferous forests of the North, but as insidious and commonly present destroyers of forest and soil. So commonplace are they that in spring or autumn during a dry week one may go through the Appalachians, even through the centres such as Asheville and Knoxville, with the air so full of smoke as to obscure the mountains, yet there will be little comment, so used have the people become to the burning of the woods. But fires in the Appalachians do enormous damage. They destroy the young trees, render defective the larger ones, and consume the soil. By removing the soil cover they reduce the regulative effect of the forest on the streams and they enable erosion to set up and go forward at considerable rapidity in the forest.

Against fires the Government takes an unswerving attitude of opposition. It will do everything it can to prevent fires on its own lands and it will go as far as it can in the education of the public against the toleration of fires elsewhere. The great majority of the local people in the Appalachians are acquiescing in the Government's policy, but some mountaineers still believe in burning the woods every year or two. I recall a conversation with a man of this belief in northern Georgia. He asked whether the Government would permit the ranging of stock on its lands and I answered "Yes." He asked whether the Government would allow the people to burn the woods and I told him "No" and explained the reasons. He said the people could not live there if the woods were not burned, that the underbrush would grow thick, that snakes and "varmints" would increase, and that the cows would get milksick. No amount of argument was convincing to this man. Such a belief leads to many incendiary fires. But there are no better fire fighters anywhere than these mountaineers, with good leadership. For example, in the Massanutten and Potomac Purchase Areas in western Virginia, Mr. E. D. Clark, the forest officer

A CAMP OF GOVERNMENT FORESTERS

HOSE WORK IN SURVEYING LANDS, CRUISING AND MAPPING THE FOREST, OPENING TRAILS, BUILDING , AND LOCATING CAMP-SITES AND SOURCES OF WATER SUPPLY IS PREPARING THE APPALACHIAN FORESTS COME THE CENTRE OF A VAST AND CONTINUOUSLY PROFITABLE INDUSTRY IN LUMBERING AND A PLEAS- ROUND FOR THE PEOPLE OF THE ATLANTIC SEABOARD AND THE MIDDLE WEST

arge, has appointed numerous fire ens among the local people. They rganized into companies, meetings eld at which fire problems and other cts are discussed, occasionally ath- or social events are added, and alto- r a fine spirit of community interest ing developed. This sort of thing ly solves the fire problem.

ere are many mountain communities Appalachians in which the popula- is less than it was twenty-five or years ago, as scores of abandoned s, school houses, and churches bear ss. Several forces have contributed is result, the chief of which is that mountain farmers found that they sell their lands for real money to the rland buyers a few years ago they ned to do so. The mountain farmers tired of the starvation conditions which they and their families had Also about this time came the opment of manufactures in the Pied- region and in the great valley to the west of the mountains, with a consequent demand for labor. Not only could the mountaineers work, they could have their children work in the factories. They had an opportunity to live in a village and they were attracted by the advantages of social intercourse, school, and livelihood that village life afforded.

The entrance of the Government into the situation as a buyer carries this movement forward to some extent. Not nearly all the mountain land has passed into large ownerships. Much of it is in tracts of 200 acres or less. Many of the farmers live upon their lands and till a small portion, perhaps twenty or thirty acres. The rest is in timber. Many are anxious to sell and the Government is acquiring several hundred such tracts. The people are glad to quit the hard conditions under which they have been living and to seek for themselves homes elsewhere. The mountain life has in fact become harder than it was before their neighbors began to leave because it has been more difficult

to keep up churches, schools, and roads. For the regions in which the Government is buying land a silent but rapid transformation is therefore coming about. The mountain farm life which was so heroically tried during more than a hundred years has failed and the abandoned cabins and the little gullied fields growing up to timber are the mute evidences of the passing of the old order.

There will be development in the future, far more development than has ever occurred in the past, but it will be on a different basis and toward a different end.

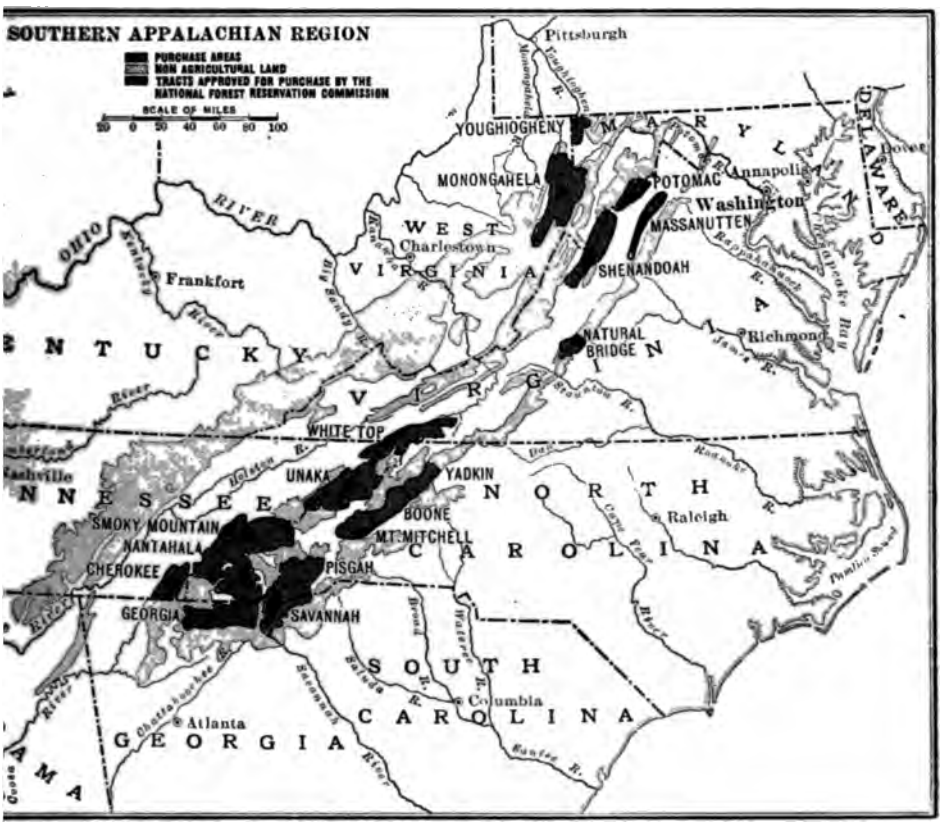
The development in prospect is that of a forest community instead of an agricultural community. The forest and the soil are to be made permanent. Successive crops of timber are to be grown and the soil, by the addition of leaves and litter, will be built up in fertility. The trees will cover the ground more thickly. They will be sound instead of defective. There will be a larger proportion of valuable kinds. Growth will be faster. These conditions will call for people to work permanently in the timber business. There will be room for many families to live comfortably. The improvements which the Government finds it necessary to put in and the protection of the tracts from fire will call for the employment of a good many men during all or part of the year. Thus money will flow into the mountains not only from the Government but from the timber and other resources. In general these forest communities will complement the agricultural communities in the valleys or the near-by foothills.

THE GUARDIANS OF THE FORESTS

CHIEF FORESTER HENRY S. GRAVES AND DIRECTOR OF THE GEOLOGICAL SURVEY GEORGE OTIS SMITH, WITH MEMBERS OF THE NATIONAL FOREST RESERVATION COMMISSION ON AN INSPECTION TRIP IN THE APPALACHIANS. FROM RIGHT TO LEFT: SECRETARIES LANE AND HOUSTON, REPRESENTATIVE GORDON LEE (KNEELING), REPRESENTATIVE W. C. HAWLEY, MR. GEORGE OTIS SMITH (KNEELING), AND MR. HENRY S. GRAVES

As an example of what is possible let us consider the concrete case of Arnolds Valley, in Rockbridge County, Va. Arnolds Creek has a watershed of perhaps 25,000 acres. About 5,000 acres make up the valley of this stream, and the remaining lands are on mountain slopes which

ın elevation of 4,000 feet. The ment has acquired practically all ıntain lands. The valley is in the ıf farmers who have a community ıough to maintain a good school. s an excellent market for nearly es of timber products. There is no mount of sawtimber but enough a small mill running a large portion me. The demand for railroad ties, ıe poles, chestnut extract wood, ıst posts is good. Utilization can lose that little waste need be left ground. Sales have even been f some of the material which was y fire or else left from cutting ten ve years ago. Under these con- a general cleaning up is possible. ıber cutting will provide remuner- ontracts for a number of small rs and provide labor for thirty or forty men. Some of these contractors occupy their own homes and farms. Some wish to live upon Government lands and in such cases every opportunity will be given for the development of comfortable homes with small fields on which to produce grain and grass for their stock. Aid will be given in soil improvement and in some instances in road construction. The Government's purpose is to encourage a thrifty forest and a thrifty population to handle it.



THE NATIONAL FORESTS IN THE SOUTHERN APPALACHIAN MOUNTAINS
I GOVERNMENT-BUILT TRAILS AND ROADS ARE REVIVING INDUSTRY AND OPENING A SUMMER RECREATION GROUND TO MILLIONS OF PEOPLE

It is a popular thing among the mountain people both to work for the Government and to have dealings with it. Even women will leave their work and go to help the Government fight fire. The foresters find that in most communities more men apply for jobs than can be employed; and wherever these mountaineers come in contact with the Government they encounter

better standards of efficiency than they have hitherto known. The touch of the Government is aiding them and they are already showing a pride in their work for the Government which undoubtedly in time will extend to their living conditions as well as to their work elsewhere. It will be a wholesome thing in all these communities to have leadership and remunerative work for every man.

The Government's presence in the Appalachians appears to have a beneficial influence not only upon the mountain folk but upon the larger holders of land. Already some of them are coöperating with the Government in fire protection. Others are putting into effect upon their own lands about the same system which the Government employs. Once the fire problem is solved we may look as the next step to the regulation of timber cutting so as to preserve the young growth. Some of the larger owners even now, when they sell their timber, put into their contracts provisions to restrict the cutting to the larger trees and for fire protection, just as the Government does where it sells timber. The Government's example is the leaven which in time must leaven the whole lump.

The suppression of forest fires, the finding of a market for all classes of forest products, the training of timber contractors in careful handling of the forest, the readiness of local people to work for and coöperate with the Government, are the well-shaped stones which go into the foundation of forestry. As these conditions are present in several parts of the Appalachians the practice of forestry is near at hand. The first cutting will have for its purpose the removal of the dead, defective, and overmature trees and those which the Government does not desire to keep in the forest. The removal of this material will place the forest in prime growing condition with the stand composed of desirable trees.

This sort of treatment applies especially where the timber in the past has been cut more or less heavily for the removal of the valuable poplar, cherry, walnut, and oak. Even stands that appear as virgin generally have had more or less cutting. Clean cutting as a rule will not be desirable in the Appalachians. A system of selection will be employed by which individual trees or groups of trees will be removed with a large proportion of the stand always remaining.

To people who can travel in the woods and the mountains on horseback or on foot, the trails which the Government is putting through its lands open the inner recesses of the mountains where men have never traveled on horseback before. These trails are for the public as well as for the rangers. But such trips should be made with guides unless one knows thoroughly the locality and the trails. There are many places in the Appalachians where roads of any sort do not exist. A wheel has never rolled through the upper watersheds of the Nantahala, the Tallulah, the Little River, and the Pigeon.

Though the trails which the Government is building make the inner recesses accessible by foot or horseback, the great majority of people who are content with a less intimate knowledge of the mountains need roads. The mass of recreation-seeking Americans will not regard the region as accessible until they can go through it in an automobile. A strong sentiment exists in the South to build automobile roads through the mountains. Good roads have been constructed in many of the valleys, and certain mountain-top roads are kept in condition for automobiles, as for example the Yonahlossee road between Blowing Rock and Linville, the Vanderbilt road through Pisgah Forest, and recently completed stretches of the Appalachian highway near Altapass. Many commercial organizations in the Southern States and elsewhere have recently urged the opening of the Government's lands for pleasure, health, and recreation purposes. All National Forests are open for these purposes all the time and when inquiry is made as to just what is desired the reply is, "roads to go through the mountains quickly and safely." This interest is becoming so strong that doubtless some plan for adequate roads throughout the mountains will before long be found.

So the forests and the mountains, the greatest obstacles of the early pioneers, are coming to remake the people of the mountains and to welcome the pleasure seekers from the plains.

WHAT'S THE GOOD OF ART?

BEING A LITTLE EPISTLE TO FELLOW PHILISTINES

BY

HENRY WYSHAM LANIER

VHAT follows may seem, to some more esthetic or less frank readers, directed against a mere man of straw. Let us begin, e, with an actual incident.

rtain magazine, which shall be s, wrote to a thousand of its sub- asking their likes or dislikes for definite kinds of articles which esaid periodical, after much troub- litorial minds, had been laboriously them month by month. The expression of all (voiced by an lming majority of those who d) was of a *dislike for the articles subjects.*

these art papers were neither nor worse than those in other es. They were certainly more ensible to the average reader ost similar accounts: for they professional "patter" and tech- ticism, confining themselves largely about the artists and their work, ing accepted contemporary master- eak for themselves as illustrations. little happening seems, therefore, ndex to a state of mind of a large of earnest, intelligent, educated ns — for if I should be so in- as to name the magazine, every f this would admit that its clientele icuously of this class. Probably t of five active "men of affairs" hearts look upon art as some re- ueer occupation, rather beneath attention from a man capable of ally useful and well paid work; ir view of the artist is admirably d by an exceedingly able man I who invariably greets any mani- n of a lack of strict honor, in or social dealings, with a scornful curl of the lips and the remark, "the artistic temperament."

It must be confessed there is some justice in the attitude of these shrewd men of the world. If art is only for the few initiate, as so many of its enthusiastic votaries would have us believe; if it consists merely in turning out practitioners not subject to ordinary laws of human conduct, whose aim in life is the production of thousands of mediocre statues and pictures, with an occasional outburst of the same sort from some larger man, whose chief excellence is that only a a little circle of experts (each disagreeing with all the others) can really appreciate him; if this, and the cheap, noisy patter of "tonality" and whatnot constitute art — why, any sensible person with the least philosophical perspective might well declare in disgust that the subject isn't worth half the pother that is stirred up about it.

But — "I speak as a fool" — happily the truth is far different. And since the people who seem to know all about it are invincibly silent on this most interesting question (or still more obscure when they speak), let us see if we can get a few obvious glimpses of the place of art in human life — your life, my life. Perhaps our minds may get a clearer impression through our own eyes, even though the advance be a stumbling through unknown country, than seems possible through the distorting lenses which must be before the orbs of some of the expert critics.

First of all, then, does art pay? Not the producer, who we are not, but the middleman and the consumer, both of which we are apt to be.

Here, at the start, the path gets difficult. Before answering, what is it that we are asked to weigh?

Well, let us take for part of our question the superficial definition. Say that art is painting, sculpture, architecture, designing, decorating. Are they worth while to us as articles of commerce?

BEAUTY AND DOLLARS

An eminent architect had to answer this recently. He is a specialist in beautifying cities, and he suddenly found himself before a mayor and board of councilmen, typical professional small-city politicians, who had never heard of him or his distinguished colleague.

His proposition to them was that their city should spend a vast sum of money in buying some scores of square blocks of land in the heart of town, razing the rookeries thereon and substituting a great park, town hall, and other public buildings, as the first step in beautifying the municipality.

"Well, mister (I didn't catch your name)," said the presiding officer, "we see what it's goin' to cost. But what does this town get out of it?"

"Good hard dollars," was the instant reply, utterly disconcerting to these practical gentlemen, who had expected easily negligible sentiment. "You see all this mile or more of property fronting on the proposed park: what is it worth to-day?"

The real estate dealer of the board told him.

"Well, long before the park is done it'll be worth from two to ten times as much. That would make some difference in your taxes? The fact is that the city of Blank found the same thing was actually a money-making operation: the adjoining property-holders really paid for the park in raised valuations, and they had a permanent attraction and a breathing place for the people thrown into the bargain."

That is one case where the superior attractiveness of an artist's product was profitable to the city (the middleman) which bought it and then virtually sold it to the general public.

In Germany the properly planned city, planned for beauty and use, is "the foundation of industrial development;" during the past decade at least a hundred American cities have waked up sufficiently to replan and improve either centres or suburbs; Philadelphia has a regular Bureau of City Planning; ask any citizen of Washington or Boston if the artist's touch paid in the embellishment of those two remarkable cities; Cleveland is spending more than twenty million dollars to "group a half-dozen public buildings about a splendid mall in the heart of the business section," and properly treat the surroundings of this civic centre; and the Commercial Club of Chicago, which can hardly be accused of being a sentimentally esthetic body, has spent $75,000 to have plans prepared for beautifying the greater city it expects, involving an expenditure of $250,000,000. They are shrewd business men; they know it will come back many fold — just as the $180,000,000 spent by Napoleon III on Baron Haussmann's plan of remodelling Paris came back. All great progressive cities have lavished millions on artists' ideas and made it profitable in dollars and a thousand other ways.

Of course, too, the cities that hold the great art of past ages find it profitable: Paris, Venice, Rome, Florence, Munich, and many another sell just the sight of their treasures to countless thousands of foreign visitors — four fifths of whom, by the way, the experts say, are these very same Americans who don't like art articles: you who read this — or your friends, at least!

Indeed, the thing is admitted, even of the hardheaded business man, in building. For the last quarter-century, during the marvelous outburst of building in this country (a veritable Golden Age for the architects), the men who "put up the money" have learned that the artist's touch is "good bait" both in dwellings and business structures. It paid to spend the additional sum. (The mistakes that have been made in taste do not alter the principle, of course.)

The same idea runs all through commercial life: the publisher, the shoe manufacturer, the railroad-car builder, the maker of dress goods — nearly everybody who produces something to sell to the public finds it wise to buy an artist's taste somewhere or other in the process — not for an esthetic gratification of his own

h would be a luxury), but just be- it is a profitable investment.

SELLING SOAP BY COLOR

· example, I once had a visit from f the most successful manufacturers .p and toilet articles — a name known er the civilized world — who wanted in getting a design for the box or : of some new perfume or toilet ıct: he needed a real artist; it was important, as evidenced by his devot- is own thousand-dollar-a-day time to ıe most essential thing," he remarked, e color: we've tried everything — but veral seasons now *rose de Chine* has the best seller we could get. We've ɔ make everything *rose de Chine*." He d art in his business, this great man. which brings us back to the con- r, the man who buys a work of art se he likes it better than something What does *he* get out of it?

shall clearly somehow have to get at question of what art is!

"ART IS UTILITY"

d there is little help from the critic- ologists, for, in all humility, these ɔd gentlemen have for some cen- perpetuated a frightful and funda- ıl misconception of the relation of o human life. Singularly enough, nly characteristics of true art upon ı these pundits of all times are agreed ıt it must be caused by an impulse g *no alloy of a useful motive!* Lest eem incredible, I will quote a recent ıing psychologist —Yrgo Hirn:

letaphysicians as well as psycholo- Hegelians as well as Darwinians, all in declaring that a work, or per- ınce, which can be proved to serve ıtilitarian, non-esthetic object must ıe considered as a genuine work of True art has its one end in itself, rejects every extraneous purpose; is the doctrine which, with more or kplicitness, has been stated by Kant, er, Spencer, Hennequin, Grosse, : Allen, and others."

t do not be misled by any such pur- observations. If from some emo- "high peak of Darien" you witness "the long roll of the Pacific," your pleasure cannot be hampered by the statement of a near-sighted companion that there is no ocean there. The truth is that art clothes utility as the features of a beautiful woman clothe the bony skull beneath; it is based upon utility; it grows out of utility; it cannot keep its vital current without utility; it *is* utility, using that word in its widest meaning. Indeed, utility, the perfect fitting of an object to an end, is art — in its fundamental sense.

These learned gentlemen may be right in a limited, technical, psychological sense; but, pray, if making a chair, with the idea of having something just right to sit on, is utilitarian, is it not also utilitarian in a different way to paint a sunset in order to satisfy one's sense of beauty? A cathedral may call forth a higher order of feeling than a locomotive, yet the latter is distinctly capable of being made a thing of beauty. One of the ablest of our younger artists remarked not long ago that he wished to prove this very point by drawing some of the modern types of railroad engines, which, he declared, were distinct artistic creations. The artist craftsman has both the joy of adapting his work perfectly to its destined use and then perhaps of giving it whatever he wishes of proportion, balance, and decoration that may not be directly necessitated by its constructional needs, but probably grow out of these and at least never belie them.

Let us try a great artist for our elusive definition.

M. Rodin, one of the largest figures of our day, has declared that "there are as many kinds of art as there are kinds of feeling." It is a noble saying, and true in the fundamental essential of recognizing the art instinct and expression *as a part of warm life*. We are on a broad highroad with this flash of genius to light the way. For, go back as far as you like into history or prehistoric geological eras, you will always find among the dominant necessities of human nature that of expressing emotion to one's fellows. Joy or pain, a curious or beautiful fact of the world about — when these sensations become keen enough, they *must* be passed on to others somehow. Why, no one

knows. The fact itself can be proved from every individual's experience.

THE BEGINNINGS OF ART

Look for a moment at the beginnings of art. There have recently been discovered in caves in France, Spain (especially in the last few years at Chapelle-aux-Saints, Font de Gaume, Combarelles, Altamira) relics of men who lived before the Ice Age, certainly more than 100,000 years before the Siege of Troy, for instance — men so far away from ourselves that the scientists class them by their skulls as different species. Yet these earliest known human beings — almost animals they seem to us — had plainly felt this universal need of expression for many, many generations: they had gone far beyond the shaped arrow-heads which are the first art expression of primitive man: engraved on pieces of bone, scratched on the walls of their cave homes, carved from the rock, painted in colors on the roofs, are figures of reindeer, bison, and horses, so life-like that a sportsman to-day recognizes with a thrill the exact position he has seen a caribou take on the Newfoundland barrens, sees in this inconceivably remote savage a blood-brother in feeling to the men who carved the deathless horses of the Parthenon. Surely that is art — that giving immortality to a feeling about something by scratching down the object which aroused it. One can fairly see this primeval hunter telling how he stalked the game he has brought in for food — and finding the quickest way to express his recollection simply to scratch the scene on a smooth, hard surface. "He stood so — his side toward me, very close. Then I leaped up, drove my spear in deep — right there. Let us feast."

This particular race of "reindeer" artists vanishes from our meagre records, and there is nothing to compare with their work for hundreds of centuries. But the old instinct never dies; the man or woman capable of expressing emotion superlatively always reappears. It may be in basketry or pottery or rugs with wonderful designs, beautiful because they *are fitted for their purpose*, because they have symmetry and simplicity, because the decoration has a meaning and a feeling traceable back through ages of conventionalization; it may be furniture made for Egyptian or Assyrian kings with legs or whole frames copied from the kingly lions over whom the conqueror has triumphed in reality; or jewelry of unequalled designs to hang about the neck of some One Woman; or houses and palaces decorated and beautified with all the skill of the age: in a myriad manifestations we find the artist using some daily necessity or luxury to express his sense of joy in life and its wonders, leaving these records of his emotion to startle the seeing eye of beholders a dozen or a hundred generations later.

What did *he* get out of it? A living, perhaps, and a mighty poor one. Margaret of Austria, only a few hundred years back, paid her chief architect-artist about half what she paid her head cook. But the real pay was the joy of expressing, that mingled necessity and delight which is one of the most precious qualities of the children of men.

GREAT ARTISTS GREAT CRAFTSMEN

All these were craftsmen, you will notice — men not separated from their fellows but performing many different useful functions. A sixteenth century artist was apt to be at once a poet, a painter, a sculptor, an engineer, a decorator. Nothing by which he could express his surging ideas was beneath his enthusiastic attention. Art could not help being vital under such conditions. And alive you will find it through all the stormy course of history, every nation having its vast swings from barbarism to civilization, to over-refinement, luxury, and decay. Right down through those wonderful and maligned Dark Ages, which produced some of the most precious treasures of the world's heritage, art "cried aloud in the streets" and was heard to some extent by all; though then, as always, it was the great noble who took the choicest for his own glory.

And to-day? Well, it seems as if Antæus Art did not get his feet upon Mother Earth enough to keep the breath

his body. The machine does every-
ıg useful; the artist has become re-
nsible for mere superfluities. He is
a cabinet maker, nor a mechanic,
ooth, but an esoteric worshipper, with
s not for vulgar eyes. And the natural
ılt is not only the wide breach between
and the rest of human effort (with
ch we started), but a lessening of
ıning and strength and vitality in the
t body of artistic work.

s a sculptor friend loves to say: "I
to think of Michelangelo as a *workman*,
ıg his daily job, and doing it thunder-
well."

ART FOR EVERYBODY

t may be that we shall succeed some
in transmitting personality and feeling
ıugh our machines — though my artist
ıds hoot at the idea. Meanwhile it
vell to recognize the truth; there is
past, present, and future; good, bad,
indifferent, all about you. Its laws
e been catalogued by many acute
ics from thousands of examples which
ages have pronounced enduring,
you may spend a lifetime studying
results of their analysis. But the
l test is the power and skill with which
ıe human like ourselves, but with
ıer nerves, has expressed some quiver-
human feeling — not for the experts
ıe but for every honest and simple mind
t is willing to look long enough to find
secret.

t has been well said that the act of
reciating a work of art involves a
ıtion similar to that in the artist who
sed it; this is what gives such pleasures
r keen edge: for in this mental crea-
ı man rises above his bodily limitations
becomes "as the gods." And we
all be creators in this sense. Though
s easy to misapply Tolstoi's ringing
aration that the greatest art is uni-
ıal, the basic fact is happily beyond
stion. There is no caste in art appre-
ion: these joys, these quivers of pleas-
are for every open-eyed human
ture who will reverently look and
ly. People will differ in this as in
y other quality; but the great de-
racy of art cannot be questioned by
any one who considers these questions of its origin in the depths of universal human nature.

And as for paying — what does one take from life except a certain number of gratified emotions? It is for that we slave; and yet, granted food and shelter, most of what is obtainable beyond is ours for the mere gazing at the handiwork of some fellow man who has left for us the story of his own feeling, immortal, inspiring, satisfying.

You might almost as well ask if it paid to learn the language of those among whom you live. For art, with its sister tongues of poetry and music, is the language in which the great thinkers have told their sense of the beauty and splendor and mystery of life. You will find much done in its name which has neither beauty nor significance — just as thousands use language, to one who really has something to say. But that is merely the old story of the infinite diversity of human personality and the necessary "averageness" of the average man.

THE THINGS YOU LIKE BEST

You may find your own temperament gets more pleasure out of beautiful furniture or a flower garden or laces or women's hats than from paintings or sculpture: in that case, having given it a fair chance by seeing the best, rest assured that you are getting what you need from art by gratifying this instinct in whatever way seems effective. There is no human being without some ideal of beauty, some sense of life's wonder; and the more one feeds this craving on what is sincere, real, significant, the wider will grow one's art appreciation.

Indeed, it is not idle enthusiasm, but sober cold fact, to say that not only will the eager discoverer of these pictured emotions from men of the long ago get a fresh sense of the history of the race, a fuller comprehension of human character and struggle and advance; but you will discover, perhaps to your great surprise, that your daily work assumes a new look. I don't care whether you are a doctor, a lawyer, a merchant, a preacher, a teacher, a politician, a manufacturer — just try

it, and see if you don't get a clearer vision of many perplexing problems. I know one man, for example, who, after spending six months' spare evenings in close technical reading of volume after volume on ancient and medieval architecture, declared that his daily job of applying the latest theories of "scientific management" to a big factory took on an entirely different aspect: not only did it have an increased fascination, but the correlation of the human cogs in the organization he was building, and the work of the steel or iron machines they used, all seemed to range themselves into an orderly, rounded plan, of which he could see the workings as he had never seen them before.

A TRAINING IN ORDER

The only explanation of this seems to be that there is an art of life and work which is based upon those same art characteristics of order, rhythm, balance, and symmetry — so that the study of, and emotional response to, these admirable qualities in a Grecian temple or a Gothic cathedral inevitably lead the awakened enthusiasm to apply them in the practical exigencies of daily work.

Man that is born of woman is, thank Heaven, ever under the necessity of attempting to imitate what his brain and heart see to admire in the world about him. Instinctively he turns toward the true, toward the beautiful, as a flower turns toward the sun; and even as the plant grows under the soft spell of sunlight, so does a man's esthetic nature take to its secret nourishment those subtle spiritual foods that it finds in the visions of other men.

THE HISTORY OF THE TREE

One might well illustrate the development of the art instinct through the single change in, say, a man's attitude toward a tree. To the first settlers trees were enemies, in the way of wresting a living from the soil. They extirpated them, root and branch, as they did the Indian aborigines. Then came the lumberman, or the farmer appreciating that this was the only crop which he could reap without sowing, which meant help in paying off the mortgage with no sweat of his brow: to them, trees became significant only when ripped into lumber, that is, dollars. Followed the more leisurely country dweller, to whom a hundred-year-old oak or elm was a possession, useful for shade, desirable as an ornament, conferring a sort of distinction upon its possessor, so that the rich man who made his country estate over night paid hundreds of dollars to move a single big tree to where it would fit in with the carefully arranged landscape around his new mansion. And presently, with more leisure, men of imagination, who loved Nature and her myriad miracles, began to see that a man might study one of these great spreading centenarians all his life and never fail to find fresh beauties of inter-tracing winter limbs against the cold, yellow-green sunset sky, of rugged bark and many-hued lichens, of the marvel of unfolding red spring buds — for what monarch of all the world had ever a palace comparable to the Great Oak where hundreds of generations of squirrels and hawks and owls and flickers and scarlet tanagers have lived at home? And at the apex of the progression comes a poet-artist like the painter, Henry W. Ranger, to whom a Connecticut white oak is at once a thing of marvelous beauty — in its tracery of limbs and twigs, in its spread of concealing, revealing foliage, in its manifold changes of season and atmosphere — and a symbol of slow, enduring strength, an epitome of its native country, an impressive reminder of short-lived man's insignificance in the cosmic order.

This America of ours has passed through a similar cycle on a large scale: first, the pioneer period of fighting, with kings for liberty, with Nature for necessities of life. It has had nearly half a century of tremendous material expansion, with the inevitable consequent demand for beauty, refinement, and luxury which has always in the past been a large element in calling forth the artist's achievement. It is a good time, while our twentieth century is still young, to take account of stock, to see what we have accomplished in art, and what the promise is for the future.

A COLLEGE FOR RETAIL CLERKS

THE FIRST ATTEMPT TO GIVE PRACTICAL EDUCATION TO THE THIRD LARGEST CALLING — UNIVERSITY EXTENSION WORK FOR THE MAN BEHIND THE COUNTER, WITH CIRCUIT RIDER TEACHERS TO TRAIN COUNTRY MERCHANTS AND SALESMEN THROUGH EVENING CLASSES IN THEIR STORES

BY

GRANT MILNOR HYDE

THE Empire Furnishing Company's store was closed for the night. Its front doors were locked and, after the manner of small towns in Wisconsin, its show windows were dark caverns, with the lights of the drug store across the street reflected on the plate glass.

Deserted as the store seemed to passers-by, there was life within it on this particular Wednesday night. Back in one corner — in the rug department, to be exact — two arc lamps made a splotch of light. Under them about thirty persons, mainly young men and women, were seated in a circle, notebooks and pencils in hand watching two young men in the centre.

One young man was standing beside a small table on which a large rug was spread out to the light. Another rug lay across a chair near him. The second young man was seated in front of him studying the rug on the table. Twenty-eight persons in the circle watched the two intently. At one side stood an older man studying the scene.

"This rug on the table, Mr. Hall," the young man beside the table was saying, "is of a very fine quality. It is one of the best grades of ingrain carpet that we have ever carried in this store. You notice the depth of the woof — almost as heavy as Brussels. And the warp — so firm that I can't stretch it out of shape. The quality of the wool ——"

"But I can't see six dollars' difference in the rugs," insisted the other.

"Six dollars' difference? Why, there is no comparison between the two rugs. The cheaper one is a good average ingrain but the other is an ingrain with the firmness of Brussels. Just feel that warp ——"

"Yes, I see — but I don't need such a good rug."

"You can't afford to buy a cheap rug that may wear threadbare and 'slimpsy' in a year. You simply can't afford it. Just figure how much six dollars amounts to when spread over several years."

"Oh, well, I know, but it doesn't matter how strong and durable it is — it's bound to fade just about as quickly as the other."

"Yes, but — but — I ——" the youth in the centre stammered and scratched his head, then whirled around toward the older man who stood outside the circle.

"Say, professor, what's a fellow going to say to that?" he asked. "That rug *will* fade, you know."

All eyes in the circle were turned expectantly on the man addressed as "professor," and the youth seated in the centre smiled exultantly.

"Yes, sir, that's a good point," exclaimed a portly man with flowing mustaches who sat on one side of the circle. "That's a facer I've been up against many times. What's the answer, professor?"

"Answer him by emphasizing the wearing quality," replied the "professor." "Of course, sunlight will fade almost any ingrain rug. But show him that it isn't a matter of fading — it's a matter of wearing quality. Make him see that the rug can't wear threadbare."

Then questions began to rain on the "professor" from all parts of the circle. Before many minutes had passed he had explained the entire manufacture of ingrain rugs from the preparation of hemp and cotton to the weaving and dyeing. Every point that he made went down in twenty-eight notebooks. The man with the

mustaches asked few questions but listened attentively.

"Well, I think that is enough for one evening," the "professor" said at length. "For next week we shall study Chapter IV. in the text — the chapter on 'The Psychology of Selling.' I'll meet you again next Wednesday night — I believe we're to practise on dress-goods then."

The night watchman looked surprised when the young people trooped out of the dark store. "What's up, Ed?" he asked a young man.

"Oh, just the weekly class — we met here to-night."

Meanwhile the portly man with the mustaches had cornered the "professor" in the store's office and was going over the publicity of next Saturday's bargain sale. Before they turned out the lights, the "professor" had helped him prepare his advertising "copy" and planned his window display. As they walked out of the store, the "professor" was giving advice on a credit account of long standing.

A CIRCUIT RIDER OF BUSINESS

Such an event is not unusual in the small cities of Wisconsin. Every night somewhere in the state such a gathering is held in some darkened store. The young people are the more ambitious among the town's retail clerks, studying scientific salesmanship under the direction of the "professor." With them, merchants, like the proprietor of the Empire store, are learning how to improve their business.

"But who is the mysterious 'professor'?" the stranger asks.

The "professor" is a representative of the Extension Division of the University of Wisconsin and the little gathering in the darkened store is a university class in retail selling. The "professor" is a circuit rider teacher sent out to educate country clerks and merchants. For the training of "the man behind the counter" is now a regular part of the University of Wisconsin's work. It offers a correspondence course in retail selling and store management that carries education to country salesmen who cannot afford to go to college.

Until less than four years ago, salesmen had no place in the universities' extension courses. Why? Because the numerical significance of the retailers and the facts about the occupation of selling are only just now beginning to dawn upon the schoolmen.

THE THIRD MOST NUMEROUS CALLING

Numerically, the occupation of retail selling ranks third among all the callings in Wisconsin. This is true of the entire country, also. It is exceeded only by the occupations of farming and housekeeping. Between 60,000 and 70,000 persons are engaged in retail trade in Wisconsin. In no one branch of manufacture nor in any skilled trade are more than 5,000 persons in Wisconsin engaged.

Between September, 1910, and March, 1914, more than 1,500 students have enrolled in the extension course for retail salesmen. Forty-two classes in salesmanship have been conducted in thirty-two different towns and cities, with only one circuit rider teacher in the field at one time. Employers as well as salesmen have taken the course. In some department stores the entire personnel, from proprietor down to elevator boy, has been enrolled in the same class. Already the work has reached that stage — the second stage in every educational activity — when young people are studying scientific salesmanship so that they may become teachers of it.

Are the students benefited? Some of the results of the early classes are now available. One student, an "ad" man in a department store, jumped at once from a salary of $1,500 to a salary of $2,500 a year in the same store. The next year his success brought all the other employees of the store into the class. Another student, a clerk 32 years old, is now credit manager in his store. Another graduated from a small shop in Wisconsin to be head of a sales department of a large mail order house in Chicago. One student was snapped up during a practice sale by the representative of a life insurance company and is now a successful agent. A delivery boy in the same class became head of the paint department of a large hardware store. These are a few of the results.

"For the price, I believe that the course of instruction in retail selling was the best

:ment the firm has made in years," ɔne merchant, the proprietor of a tment store, who paid to have the : given to all his employees and took ork with them.

CORRESPONDENCE AND CLASSWORK

ıost any one may take the course. :lasticity of the entrance privileges racteristic of the extension methods ıyed in Wisconsin. There are no tional requirements whatsoever. The ı of the course is not fixed; registra- s in effect for a year and the work be concluded at any time within : months.

greater elasticity, the course is ɪ both through correspondence study ırough local classwork under a circuit teacher. A student may take both hes simultaneously or either separ-

He may enroll in one or both with ırpose of achieving a certificate or he ıttend classes merely as an auditor. : correspondence work ordinarily a student busy six or eight hours a for ten weeks. Local classwork in- ; a weekly evening meeting for five :utive weeks. At the end of either h of the work, examinations are held ertificates are granted on the basis of y written papers. At first glance, nount of work required seems small, : must be remembered that country ıen work long hours and that stores sconsin are usually open to the public two to five evenings a week.

DIGNIFYING THE CLERK'S JOB

: total cost to the student ranges $3 to $5, depending on the amount rk he desires to take. This includes thing except postage on the papers ıre sent to the department. Ordin- it is payable in advance but, despite ıw cost, instalment arrangements are for persons of slender means.

ut what can a university do for a clerk?" I asked one of the pro- s in the salesmanship course.

'e are trying to dignify the job of the behind the counter," he answered. are trying to show him that he has a te, necessary place in the business of life and that his work is as legitimate and honorable as that of the professional man.

"We dignify the clerk's job," he continued, "first by making him dissatisfied with it — that is, with the way he is doing it. And then we show him that if he goes at it right he will find that he can make his job as interesting and as profitable as medicine, or law, for example."

This sounds easy. Just how to do it is another matter. That is the question which the Extension Division faced when it undertook to teach retail selling. An instructor must give something besides precepts and lofty exhortations. He needs facts and principles; and, until recently, little had been done toward gathering the facts and principles of retail business.

The Extension Division attacked the problem very much as it had attacked similar problems in its other vocational courses — by making its teaching a matter of organizing what its students already know. Most of its student salesmen have had some experience behind the counter and have picked up a few facts and principles. But rarely have they put together the twos and twos that make the fours of their work. The educator sees, however, that when the various bits of knowledge gained by experience are digested the student finds himself already in possession of a mass of usable knowledge that makes little additional instruction necessary. The teaching of retail selling may thus be made simply self-education under direction, which does not necessarily stop with the course.

POOLING EXPERIENCES

Efficiency is the goal of the teaching. The business man of yesterday might succeed with haphazard methods, the teachers admit, and might learn efficiency from hard, personal experience. But efficiency to-day must be built upon the experience of other business men. In other fields of work, the past performances and experiences of predecessors have been gathered together in usable form for the newcomer. The professor of engineering can give his students a handbook of other engineers' experience in mechanics. In retail trade, this is not possible. But the teacher of salesmanship can accomplish the

same end by putting thirty business beginners in a class and combining their individual experiences in the light of his own knowledge — by putting all the store's salesmen together in a class, like that in the Empire store, and reproducing the sales before them. As each salesman manœuvres his customer toward a sale, every one present learns something about the art of selling — actors, audience, and teacher.

AN ITINERANT PROPHET OF EFFICIENCY

The circuit rider teacher who is now directing these university practice sales came to Wisconsin after nine years' experience as a salesman and after courses in several schools of salesmanship. He knows both ends of the work — the practical and the theoretical. He is primarily a country salesman, but his experience in city department stores brings to the clerks in Wisconsin's small towns a new outlook.

His work is various and difficult. When he appears in a new town, these country merchants and their clerks are inclined to consider him a college professor with a head full of "book-learning." During the first few classes they grill him to see if he knows what he is talking about. They read up on trade papers and fire volley after volley of questions at his head. But after a while they learn that he can teach them many things that they want to know. In the meantime, he visits their stores, talks over their individual problems with them, and gets close enough to them to suit his lectures to their needs. Many of the merchants in the towns on his circuits have learned to lean on his advice.

There is a merchant in one small city who always expects some of the teacher's time on class day. In the face of keen competition and old-fashioned small-town notions about "store-keeping," he finds that the "professor's" advice makes up for his own lack of education and business training. One of his latest problems was petty thieving among his clerks.

"I'm up against it again," he explained, as he greeted the "professor" at the railroad station. "My clerks are 'knocking down' so many sales that I can't pay the rent. How can I stop it, professor?"

"Do you use the numbers on your sales slips to trace back to the salesman who made the sale? Many storekeepers don't. But that's what the numbers are for — to catch thieves, among other things."

Although the answer is simple, it was news to the merchant.

The desire of the average country clerk to throw up his job and migrate to the city is one of the chief difficulties that the "professor" encounters. He must avoid painting city salesmanship in too glowing colors, although at the same time he must use the city as a model in retail business. Almost every class brings him two or three clerks who want him to find them jobs in the city. Week after week he labors to convince them that they are better off in the small town if they make the most of the jobs they have.

THE TEXTBOOK OF SALESMANSHIP

But this local class work which is illustrated in the Empire store — and of which the circuit rider teacher is the nucleus — is only a part of the University's work of teaching salesmanship. It is, in fact, only the surface. The foundation of the course is correspondence study and it is carried on by the same methods that are employed in older extension courses. The skeleton of it is the study of a text and the preparation of weekly recitation papers to be sent to Madison for correction. The sinew of it is weekly evening classwork to teach correspondence students how to study.

"For next week we shall study Chapter IV. in the text — the chapter on 'The Psychology of Selling'," said the "professor" to his class in the Empire store. The text he referred to is the correspondence branch of the work. The weekly lessons are chapters from a text on retail selling prepared by Mr. Paul H. Neystrom, the founder of the course.

And it is a most unusual text — a book put up in small doses especially prepared for correspondence students who have never learned how to study. It is divided into ten sections of two chapters each, bound in ten separate pamphlets. The first six assignments are concerned with selling goods; the last four tell how to manage a store. The lessons are sent to

student one at a time. As he masters ı in turn, he prepares written answers ı list of questions at the end of each pter and sends his papers to the home :e for correction. The succeeding ɔn is returned with his papers. At the he takes an examination and, if he ;es, receives a certificate. In local ses, all the students work together on same assignment.

The purpose of this course is to help retail salesman to sell more goods — to ease his personal efficiency by showing the lines along which successful sales-ıship must develop" — thus the Ex-ion Division expresses the aim of the book. It purposes to develop sales- ı rather than "order-takers" — and chants rather than "store-keepers." ficiency in its broadest meaning," it :inues, "signifies the possession of the t sort of knowledge and the ability to that knowledge effectively."

'hat knowledge is necessary for efficient smanship? After attending one of the l classes, an outsider is likely to get the ression that the instruction consists rely of practice selling. What the ıder sees is only the practice. Really ınderstand what the University gives ;tudent salesmen, one must delve into correspondence text and examine problems that are attacked in the ten work. It is there that one finds theories and principles behind the hods of selling as they are taught in :tice sales.

ELEMENTARY ECONOMICS

he text is made up of one part political ıomy, two parts pyschology, and ten s practical business principles, dis-ed in a syrup of illustrations. Only part of economics which concerns the behind the counter is brought in, and that part of pyschology which is led by the handler of customers. ıtever ethical precepts the text offers driven home with striking examples. There is a great deal of misconception ıe minds of many salesmen, even mer-ıts themselves, concerning the social tion of selling. Such avowed policies get all you can,' 'charge all the traffic will bear,' etc., are all wrong in both principle and practice."

This is the gist of the first few lessons, which are devoted to the economic side of retailing. The salesman learns first the economic place of retailing in commerce — why the retailer is necessary and what his duty to Society is. In the next lesson, he is told the salesman's place in retail business and the characteristics that are required for the place.

"There are many so-called salesmen who are really not salesmen at all but merely order-takers, whose places might easily be filled by vending machines. But there is no mechanical device that can take the place of the real salesman. Good salesmanship does call for strong natural endowments, but most people have these endowments, at least in some degree."

SIMPLIFIED PSYCHOLOGY

As a part of these endowments, specialized knowledge is put first. The salesman is told to acquire knowledge of his goods — knowledge of their history, manufacture, uses, qualities, and prices. He is urged to get acquainted with his house and its policies. Meanwhile he must study human nature. This brings in psychology. The country salesman has no use for theoretical psychology, but he can use the rudimentary ideas. Several lessons are therefore devoted to laying open his customer's mind and pointing out the instincts and habits to which the salesman must cater.

By way of practical application, the sale of a piece of goods is reduced to five separate pyschological steps which form the backbone of several weekly lessons on selling. The steps outlined are: (1) getting the customer's attention, (2) arousing his interest, (3) increasing his interest, (4) arousing desire and action, and (5) inducing favorable decision. Each step brings new problems. Advertising, window display, and the salesman's appearance, dress, and manner, form a part of the first step. In studying the second and third steps, the student analyzes the forms of address and kinds of questions that will arouse his customer's interest and create a "yes-saying" state of mind. Under the head of "Closing the Sale," customers are differ-

entiated as impulsive or reasoning and the student is taught the use of "suggestions or reasons-why." These instructions are illustrated with selling talks taken from life.

The special problems of salesmanship come later — the salesman's personality, his treatment of customers, his relation to his employer. One lesson shows to the careless clerk the leaks and losses in retail business — just how seriously his negligence may cut down the narrow margin of profit. Store and window display and his part in them take another lesson. Lastly he is shown how to continue his studies alone.

The merchant's part of the course, the last four assignments, deals with even more practical problems. It awakens the merchant to the possibilities in his store. It shows him how the departments of the big city store may be copied in his little shop. The discussion of store policy leads him to think about what he is doing and what is ahead of his business. The questions of handling trade-marked and nationally advertised goods, the best ways to go after new business and to meet competition, are only a few of the points discussed. "What is a fair profit?" takes an entire section.

THE MERCHANTS' COURSE

But the part of the course that is of greatest assistance to small merchants is the discussion of store bookkeeping and the cost of selling goods. It is news to most of them. Few country store-keepers know how to inventory, to figure overhead costs, or even to mark up goods so as to realize a given profit. It is here that the small merchant is given the practical application of the theories of cost-finding that are being worked out in the schools. Typical examples show him the actual loss that results from the average merchant's habit of basing his figures on the cost of his goods. He learns that if he is to figure profits and expenses in a logical way he must compute them on the same base — and that base must be the selling price of his goods.

If the course did nothing more than this — the training of small merchants in cost accounting — it would be worth thousands of dollars to its students. But it does more. It shows them how to take an inventory, how to reckon the turn-over of goods, how to figure markdowns, how to bargain with wholesalers for discounts.

In the lesson on "Buying for a Retail Store," more problems are discussed than most country merchants ever think of. Advertising methods are outlined but are reserved mainly for another course. Credits, collections, and other phases of the credit-man's work fill another week's lesson. The one point emphasized is the need of judging risks and keeping credit cards for charge accounts. For example, here is a typical problem:

A PROBLEM IN CREDIT

"A man who is buying a home on the instalment plan is in debt to your department store to the extent of nearly $100. No payments have been received on account for sixty days. The man's salary, we judge, must be between $65 and $80 per month. There are no children in the family. His wife comes to the store and wants to buy two oriental rugs at $75 each, on time. What will you do about it?"

All these questions — which the student answers in writing after each week's lesson — are questions that would come to him as salesman or merchant. It is plain that their purpose is not entirely to test the student. Little imagination is required to see the invaluable information that would come in 1,500 conscientious answers to such questions as these:

"Enumerate the leaks in your store."

"What does it cost you to sell goods?"

"Write a good selling talk for a certain piece of goods."

"What is the salesman's service to each class of customers?"

"What policy should a salesman take toward complaints?"

"How do you handle the credit problem?"

This is the way the University of Wisconsin is carrying education to country retailers. The work was undertaken largely as a natural consequence of other extension work for business students. It was developed in one of the circuit classes in Business Administration by a new teacher who happened to have some new ideas. Other states are now introducing

Last year the business men of Duluth, n., sent to Wisconsin for a man to onstrate the work. More than 500 s and merchants attended his first re and the class finally enrolled had members. The University of Minne- took up the idea last winter, and the ersity of Kansas is developing a se along similar lines.

isconsin's experience has shown the need of more specialized courses, and two are now being prepared. One of them will be a study of textiles — their history, manufacture, and handling — from the salesman's point of view. Another will make a detailed study of the selling of men's clothing. The state university's work of teaching salesmen by mail has only begun. The future alone will tell how it is going to develop.

THE MARCH OF THE CITIES

YOUNG AMERICAN ARCHITECT BUILDING A NEW CAPITAL FOR AUSTRALIA

AWAY down on the other side of the earth the people of Australia are building a great capital city in the middle of the wilderness of uninhabited ng plains that sweep up from the n to the sunlit mountains of the in- r. The architect who is to control supervise this mammoth undertaking chosen from competitors of all races; he is a young and comparatively own American, Mr. Walter Burley in, of Chicago.

orn in Illinois in 1876, and educated e state university, Mr. Griffin engaged ctive practice in Chicago for thirteen s, without spectacular success. But lay, 1912, it was announced that he won the prize competition for the plans of an Australian capital. The petition had been proposed and red by the Liberal Government; and, their decision, Mr. Griffin was ded the prize money of $8,700, and requested to hold himself in readiness ave for Australia at short notice.

en, when all the plans seemed com- d and the project was ready for the ls of the workmen, came a sudden ical upheaval. The Liberal, or Rad- ministry, after a long tenure of power, swept out of office; and a Conserva- Government succeeded it.

ith the change of ministry came some- of a change in public sentiment; the ambitious plan of creating a new capital city was looked upon with distrust and misgiving. The whole idea seemed too prodigal and fantastic to lend itself favorably to conservatism and many people deemed it most hazardous to adopt the somewhat startling plans of a comparatively unknown and untried architect from America. These people made frantic appeals to the spirit of provincial patriotism. They argued that there must be plenty of architects in Australia or in the rest of Great Britain who were just as capable as this "obscure Yankee" of formulating a practicable plan. Many of the best known British architects had competed for the prize; and some Australians urged that a composite of their plans be made from which might be evolved a suitable design. So, for many months, it seemed that a compromise was imminent.

Here, however, the thorough sportsmanship of the Englishmen and Australians came into evidence. The very architects who had been defeated for the international honor rose in protest and demanded that the Government stick to its promise. The leaders of the profession gave wide publicity to their conviction that the plans of Mr. Griffin could not be bettered, and insisted that the young American be given every opportunity for proving the soundness of his designs. Finally, more than three hundred Australian architects joined in a formal memorial to the Government in favor of the Griffin plan; and

the Prime Minister expressed his complete satisfaction with the sentiments of the city-planning authorities. So, in the fall of 1913, Mr. Griffin was summoned to Australia, his drawings were ratified and accepted, and Canberra, the new capital, will be built under American direction.

Canberra was located in the wilderness because neither Sydney, with its population of about half a million, nor Melbourne, with its slightly larger population, was willing to forego the honor of being the chief city of the commonwealth. By compromise, therefore, beween the two dominating centres it was decided to select some location not too far distant from either. So, almost at random, a site was chosen about twice as far from the larger city as from the smaller, eighty miles inland from the ocean, in the southeastern part of New South Wales. This territory, of nine hundred square miles, was cut out from the province and ceded to the Federal Government. On this territory, composed of a rolling plain and bounded by encircling mountains, Canberra is now rising.

Mr. Griffin's city plans cover a region five miles square. He has provided a simple, spacious, and convenient arrangement of the four groups of public buildings — government, recreation, university, and military headquarters—and the rest of the city plan is concerned with the requirements of industries and habitations and with the segregation of these two into non-conflicting districts. For the convenience of the industries he has planned broad arterial avenues adapted to rapid and slow moving vehicles of all kinds, converging into centres from as many directions as may be convenient. The two most prominent of these centres are the urban centres; one of them for administration offices, courts, city hall, banks, etc.; the other centre for the concentrating of the heavier traffic and comprising the markets, wholesale warehousing, and central railroad terminal. On the other
the plan provides that d
develop in neighb
This end may be

streets that are purely distributive, contributing merely to the arterial streets, and not between points of interest. The bulk of the city will thus be protected from the intrusion of industrial interests, and freed from the traffic that might interfere with the recreation of the citizens and imperil the play of the children.

But not all the glory of the new city belongs to Mr. Griffin. The foresight and wisdom of the men who conceived the capitalization of the project deserves full credit; for they have hit upon an expedient for financing the cost of the building that is, perhaps, the most notable characteristic of the whole enterprise.

Instead of burdening the citizenship of the whole commonwealth with a bond issue that would hang as a heavy drag about the necks of the coming generations; instead of levying a distasteful and onerous tax upon the individuals of the nation, the Australian ministry has decided to make the city pay for itself. The nine hundred square miles of the Canberra district was purchased by the Government from the private owners at such a price as it could be proved that the land was worth before the bill establishing a capital city was passed. As a result of this law not more than five dollars an acre was paid for most of the property. As the values rise with the building of the new city much of this land will be sold; and from the proceeds it is expected that a large share of the cost of the new capital will be met. The mountains, slopes, and valleys on the borders of the district will be retained, however, for water supply and parks.

So, within a few years, a truly ideal city, conceived by Great Britain, evolved by America, will rise in the Australian wilderness. Already a force of military engineers is established on the site of the future Canberra. And, with the completion of the railroad and the coming of the young American architect, the work will be
shed with all expedition.
liminary work is done; and
en are laboring at the
Griffin's capital city.

MAN AND HIS MACHINES

MOTOR-DRIVEN HOES

MOTOR-DRIVEN hoes are among the recent agricultural machines that have been developed to meet the requirements of small farmers. The type of machine here shown is made in two sizes, suitable for hoeing in fields, orchards, gardens, vineyards, cotton and rubber plantations, etc.

The smaller machine, which is driven by a 2¼-horsepower motor, can travel between rows which are not less than 25½ inches apart. The larger machine, which is driven by a 4-horsepower motor, cannot travel between plants that are set in rows less than 49½ inches apart.

The knives of these motor hoes are moved backward and forward by the action of the motor and the traveling of the machine. The weeds are severely bruised and cut by the reciprocating knives, and the ground is very evenly and thoroughly broken up.

The depth at which the knives operate is adjustable, and the entire operation of the machine is easily controlled by a man walking behind.

POSTAGE WITHOUT STAMPS

A POSTAGE machine that enables a large business house to print its own postage directly upon an envelope or wrapper, thus eliminating the bothersome task of affixing adhesive stamps, is now coming into general use. This machine will seal, stamp, count, and face approximately two-hundred and fifty pieces of mail a minute.

The postage meter proper is contained in a small cylindrical steel case. Its two principal parts are the numbering system and the printing mechanism. The latter impresses a die on the mail matter, printing the evidence of prepayment. The first line of the die indicates the amount of postage, the second gives the number of the impression, the name of the post office is on the third line, and the fourth is the number of the permit. This die plate is the property of the Post Office Department, and to obtain the use of one a certain prescribed application must be used. The mechanism of the meter is capable of numbering up to 100,000, and may be set to print any number of impressions desired.

When postage is needed by a business house that uses one of these machines, the meter is sent to the post office, where it is opened by the meter clerk and set for the desired number of impressions and denomination of postage, for which he charges the same sum as for a like quantity of adhesive stamps. Each machine may, of course, be provided with more than one meter, so that operation need not cease during the time a meter is being set by the clerk at the post office.

One of the illustrations shows the nature of the postage imprint. If, for example, the meter has been set to give 25,000 impressions, the first envelope stamped will show the numeral 25,000, and the next 24,999, and so on until the meter reaches zero. There it will stop, and no amount of tinkering will cause it to start again until it has been reset by the meter clerk.

A STAMPLESS STAMPING MACHINE

THAT PRINTS THE POSTAGE ON LETTERS WITHOUT THE TROUBLE OF STICKING STAMPS ON THEM

AËRIAL CABLEWAY FOR NIAGARA WHIRLPOOL

A SPANISH company, granted concessions by the Canadian Government, is now constructing a passenger aërial cableway over the Whirlpool, which is about six miles below Niagara Falls, on Canadian territory.

The design of the cableway will be similar to that in operation on Mt. Ulia, near San Sebastian, in Spain, which is shown in the illustration on page 356. The system at Mt. Ulia consists of one car that is drawn back and forth between two mountain resorts, traveling on six cables and hauled by another. These cables are in sets of three each, so suspended that the car hangs between and below them. Should one cable break, the car would be supported by the other five. Each cable is attached to a fixed anchorage at one station, and at the other station passes around a sheave to a counterweight. As the cableway is balanced by the counterweights, the weight of the car does not increase the tension in the cables, although an increased car weight — due to the number of passengers — will, of course, increase the deflection of the cables. An endless cable, driven by a motor at one end and counterweighted at the other, hauls the car.

The car has twelve metal-spoke wheels, six for each axle. The body of the car is suspended by means of a system of wires, in tension, which radiate from a curved frame whose upper and lower members are of metal tubing. Swaying of the car is prevented by wires which connect the car

body to the two upper and the lower axles.

The system at the Whirlpool is being constructed on a considerably larger scale. The car at Mt. Ulia accommodates only fourteen passengers, whereas the car at the Whirlpool will hold as many as fifty. The terminals of the Whirlpool system are 1,770 feet apart. The elevation of the cableway will be the same from end to end — a height of 250 feet above the pool. The cables will be 1¾ inches in diameter.

A METER AND ITS WORK THAT TAKE THE PLACE OF STAMPS

A POSTAL CLERK SETS THE METER AT ANY NUMBER OF CANCELLATIONS THAT IS DESIRED AND CHARGES FOR THEM AT REGULAR POSTAL RATES

LIVING QUARTERS ON TOP OF A DITCHING MACHINE

AN UNUSUAL ditching machine is now being used for irrigation work in a part of the Everglades, in Florida. The machine weighs 37 tons and was completely remodeled after purchase to meet the conditions in the Everglades.

As the machine had to be used on vast stretches of swampy land, some kind of self-contained living quarters had to be provided for the men. Therefore, a cabin large enough to accommodate eight men was built on top of the machine. An independent electric generator furnishes light for the living quarters and for a searchlight. The searchlight makes it possible to continue work at night.

The machine cuts a ditch 9 feet wide at the top, 2½ feet wide at the bottom, and 5 feet deep. The average rate of progress in sand and muck is 8 feet a minute. The record is one mile of ditch in 10 hours.

A POWER TAMPING MACHINE

THE power tamping machine shown on page 357 was designed to simplify the filling-in work which folows the tearing up of streets for the laying or repair of sewer, gas, and water mains. It is particularly of value where it is necessary to open trenches in streets that have been improved by pavement. With the back-filling tamped by the power machine, the pavement may be replaced at once without fear of its settling over the place where the trench was made.

With the standard sized machine using a tamping head 8 by 9 inches in area and weighing about 90 pounds, two laborers can tamp ten layers in from 40 to 50 lineal feet of trench 30 inches wide every hour, making one pass over each layer. The tamping head, striking from 50 to 60 blows a minute, will strike any square inch in a trench from 1 to 4 feet wide, at any level from 1 foot above the surface to 6 feet below the surface.

The machine is a simple device, consisting of two principal parts: the sweep, on which is mounted the lifting mechanism and tamper, the gasolene engine, etc.; and the two-wheeled truck on which the sweep is mounted. The wheels and legs of the

A SIGHTSEERS' AËRIAL TRAM

A SYSTEM LIKE THIS ONE IN SPAIN IS BEING INSTALLED TO CARRY TOURISTS OVER THE WHIRLPOOL OF THE NIAGARA RIVER

truck are so arranged that the machine can be operated with one wheel and leg on the curb or other unlevel surface, which is a valuable device when the machine is required to work close up to the curb. The sweep is mounted near its centre of gravity on a saddle casting which has a bearing on a pivot on the truck axle. The sweep swings in a horizontal direction on this pivot, thus moving the tamper across the work. The forward movement of the tamper is accomplished by moving the truck ahead about 8 inches for each complete swing of the sweep.

OXY-ACETYLENE TORCH USED TO CUT UP WRECK

THE tangled wreckage of the steel steamer *Alum Chine*, which was destroyed in the lower harbor of Baltimore about a year ago by an explosion of 300 tons of dynamite loaded into its hold for transportation to Panama, has recently been reduced to steel-mill scraps with the aid of an oxy-acetylene cutting torch.

DIGGING A MILE OF DITCH A DAY

IN THE SOFT SOIL OF THE RECLAIMED SWAMPS IN THE EVERGLADES OF FLORIDA

t was necessary to remove wrecked hull in order to tect navigation. Divers e sent down to lay strings of amite, which were exploded reak the hull into sections of ze that could be handled by rge derrick. These sections e then purchased by a steel pany for disposal as steel ace scrap. The sections of l, weighing from 25 to 40 s apiece, were shapeless ses, with the plates, ribs, other members bent and npled. Rivets could not be oved to good advantage e in many cases the flanges ngles of pieces of plate were t over flat against them. he oxy-acetylene torch was zed as the most practical hod of reducing the masses crap.

n oxy-acetylene plant was ially mounted on a truck. torch operator was em- ed, and long lines of gas were provided to allow him cient freedom of movement ut the wreckage to attack it n points of greatest conven- e. As fast as the pieces of l of suitable size for hand-

A MECHANICAL TAMPER

THAT DOES THE WORK OF MANY MEN IN FILLING TRENCHES AFTER THE LAYING OR REPAIRING OF UNDERGROUND PIPES

WORKMEN'S QUARTERS ON TOP OF A DITCH DIGGER

THEY ARE LIGHTED BY ELECTRICITY AND WILL ACCOMMODATE EIGHT MEN

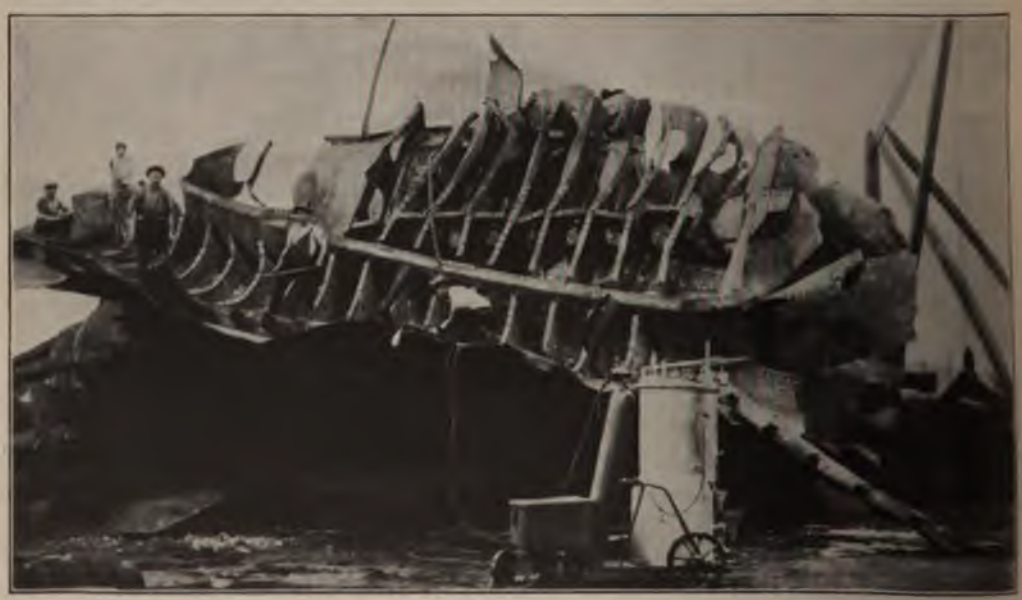
ling were cut out by the torch, they were loaded on flat cars for transportation to the mills.

CASTING A CONCRETE BRIDGE

OVER the Miles River at Easton, Md., there has recently been completed a concrete bridge, 1,075 feet long, which was cast 60 miles away in Baltimore in 460 pieces, most of which weighed about 10 tons. The casting was done in Baltimore because the materials, labor, and machinery could be handled to better advantage at a plant located there.

The massive floor slabs, 204 of them, each about 20 feet long, 5 feet wide, and 18 inches thick, and the piles, of which there were 158, varying in length from 38 to 64 feet, were cast one directly upon another and so close together that the sides touched. To an uninformed spectator it would appear that nothing was being accomplished but to make one big pile of concrete grow, hopelessly cemented together. But the engineer knew that if only every other block in a layer was cast at the same time, then allowed to harden a couple of days and covered with a thin film of grease, the succeeding blocks and layers could be cast be-

BRINGING UP WRECKAGE
TO BE CUT INTO STEEL-MILL SCRAPS BY AN OXY-ACETYLENE FLAME



SAWING A GIANT'S RIBS WITH FLAME
A WORKMAN CUTTING WRECKAGE OF A STEEL STEAMSHIP INTO SCRAP WITH AN OXY-ACETYLENE TORCH

A CONCRETE BRIDGE THAT WAS BUILT IN SECTIONS
THE UNITS OF ITS CONSTRUCTION ARE SHOWN IN PLACE AND ARE BEING JOINED BY POURED CONCRETE

tween and upon the first without trouble. When the time for removal came, they lifted apart much like caramels off a paraffined paper in a candy box. In still another section of the manufacturing yard in Baltimore, thin concrete side railings with ornamental facings were cast in specially lined wooden molds.

When all was ready at the bridge site, a floating derrick lifted the ponderous blocks aboard, grappling them by small steel eyelets which had been provided in the top surface of each piece for the purpose. The piles had been arranged in their casting block in order of length exactly corresponding to soundings that had been taken with boring machines at the sites of the piers to determine the depth to the rock on which the piles were required to bear. The floor slabs had been arranged in casting so that they came out of the cast-

DETAILS OF CONSTRUCTION OF THE BRIDGE

MAKING A CONCRETE BRIDGE FOR A CITY SIXTY MILES AWAY
WORKMEN IN BALTIMORE MANUFACTURING THE SLABS FOR A BRIDGE AT EASTON, MD.

AN AËROPLANE THAT CARRIES SIXTEEN PASSENGERS

THE HUGE BIPLANE INVENTED BY A RUSSIAN STUDENT, THAT HAS THE COMFORTS AND CARRYING CAPACITY OF A DIRIGIBLE BALLOON AND THE SPEED OF A FLYING MACHINE

ing block in sets of four — a right, a left, and two centre slabs, which locked together to make up the bridge floor for one 20-foot span between the piers.

After the piles were seated the piers were completed by casting a concrete cap over them, and then the floor slabs were swung into their resting places. A poured concrete joint between the slabs of the adjoining spans, and the connection of the rail sections, then completed the bridge.

A RUSSIAN "AIRBUS"

THE enormous biplane invented by Igor Sikorsky, a Russian, has carried sixteen passengers and a pilot on a short flight, and eight passengers and a pilot on a flight that lasted two hours and six minutes. The wings spread 114 feet, and the body and tail are 60 feet long. Besides the pilot's quarters the "airbus" contains an observation balcony, a wash room, and an enclosed passengers' cabin that is lighted by electricity, heate by gas, and furnished with chairs.

The machine is driven by four 100-hors power motors, and with this power suppl has been driven at a speed of sixty-si miles an hour. But the inventor's desig call for a fifth motor, which will probabl increase this speed. Each motor can b started independently of the others, an all are controlled from the driver's se by compressed air.

The great spread of the wings increase the lifting power of the machine. Th airbus, empty, weighs 8,250 pounds, an it has carried more than a ton of addition weight. This carrying capacity make the airbus of great utility in war. Th Russian Government has ordered fou more biplanes of this type for the use o the army. This order is part of Russia' large increase in aëronautical equipment which already includes more than 30 aëroplanes and which will be increased b 1,000 more aëroplanes within two years.

August, 1914

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WHO HAS DEVELOPED "SHOCKLESS SURGERY" SO SUCCESSFULLY THAT INJURY TO THE NERVOUS SYSTEM FROM OPERATIONS IS ALMOST WHOLLY PREVENTED AND THAT DEATHS FROM SURGICAL SHOCK, WHEN HIS METHODS ARE FOLLOWED, ARE GREATLY REDUCED

THE
WORLD'S WORK

AUGUST, 1914

IE XXVIII NUMBER 4

THE MARCH OF EVENTS

UGUST, a political campaign, and business conditions tempered by hesitancy — it is a summer of only mild content and much unrest." This de- n was written, in 1910, of con- under a high tariff and a Repub- dministration. Perhaps it fits to xtent the summer of 1914 under a tariff and a Democratic adminis- . The point is that the "pros- ' and "calamity" argument in poli- chiefly buncombe.

Cleveland got the blame for the f 1893. He had hardly been in- ted when it occurred. He had d time to do anything to affect nomic status of the country. If nic came from political action it e action of his predecessors.

only way in which Mr. Cleveland have affected the situation would een by the psychological effect of ction. When the panic of 1907 Mr. Roosevelt had been President arly six years and his party had n power longer than that. He therefore, more properly be charged e conditions which created that ion than any President of recent times in whose administration such a thing occurred. In the face of his own record his recent criticisms of the present Administration are much like other similar special pleas of adversity by the outs and of prosperity by the ins — in other words, buncombe. In the long run governmental policies are vital to business, and perhaps a very acute analyst of conditions might be able to point to certain beginnings of results soon after measures are passed, but the prosperity and calamity talk engaged in by both political parties now is not of this analytical variety.

The benefits or disadvantages of the Underwood tariff, of the currency measure, and of the trust bills will appear little by little as time goes on. Their passage caused about the same hesitancy which any change causes. To this extent the Administration is responsible for the slowness of business.

But the long-established custom of making the party in power responsible for everything that happens. whether it had anything to do with it or not, has led Mr. Roosevelt to howl calamity and Mr. Wilson to assert prosperity. This summer we haven't either. We are having a fairly slow summer in business with prospects for a better fall.

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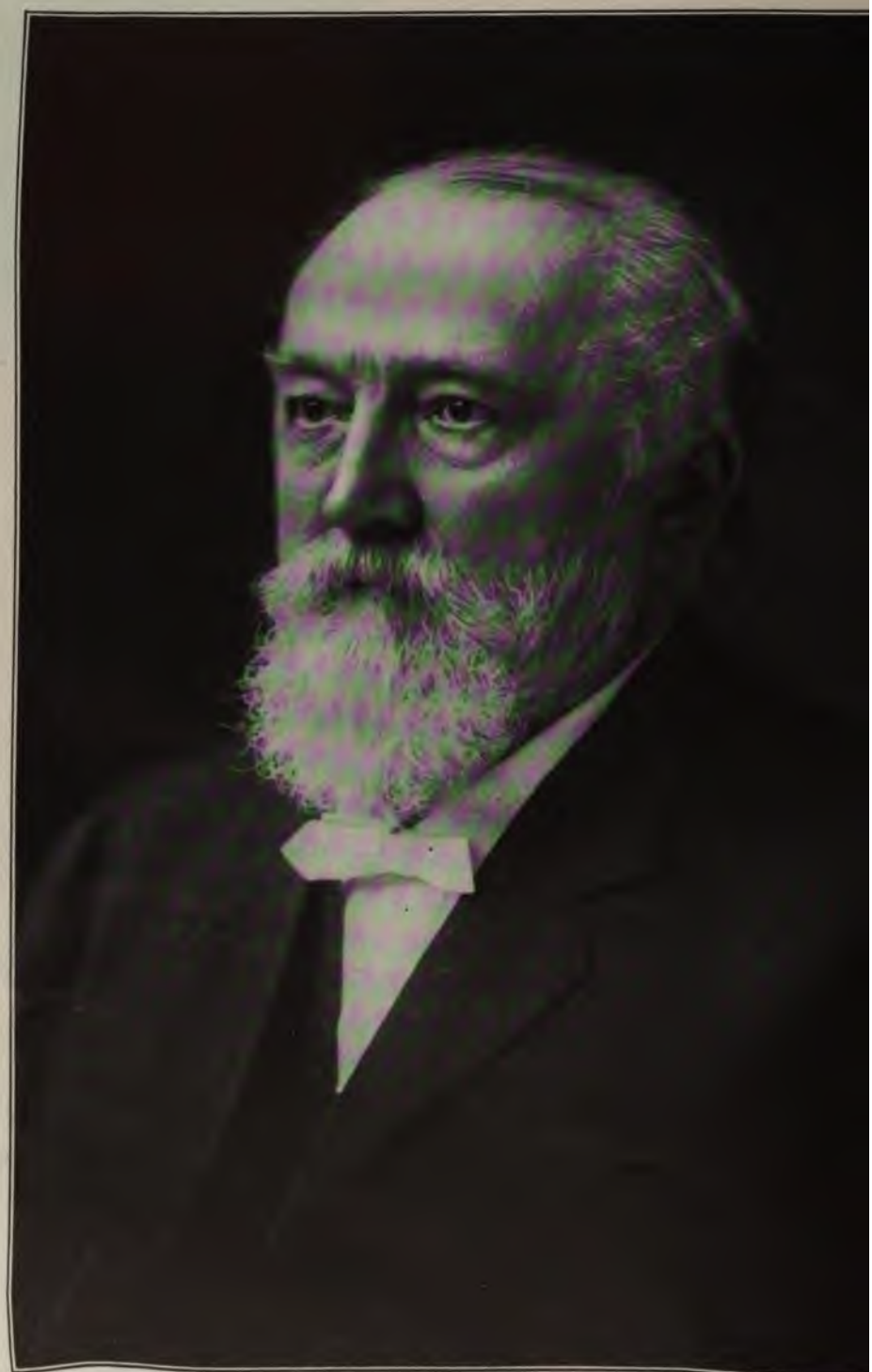
MR. FREDERICK S. CONVERSE AND MR. PERCY MACKAYE

WHO WROTE, RESPECTIVELY, THE MUSIC AND THE BOOK OF "SAINT LOUIS, A CIVIC MASQUE," WHICH WAS PRODUCED RECENTLY BEFORE ENORMOUS AUDIENCES IN THE OPEN *AIR ON THREE* SUCCESSIVE EVENINGS IN ST. LOUIS AND WHICH ILLUSTRATE NEW POSSI-*BILITIES OF CIVIC PAGEANTRY* ON A GRAND SCALE

[See page 384]

MR. EDWARD KIDDER GRAHAM

WHO WAS RECENTLY CHOSEN PRESIDENT OF THE UNIVERSITY OF NORTH CAROLINA, H, UNDER HIS DIRECTION AS ACTING-PRESIDENT, HAS DEVELOPED ITS EXTENSION K AND ITS OTHER SOCIAL SERVICES SO THAT IT IS BECOMING A UNIVERSITY OF AND ALL THE PEOPLE OF THE STATE



MAYOR RUDOLPH BLANKENBURG, OF PHILADELPHIA

WHO, IN COÖPERATION WITH THE MAYORS OF SEVERAL OTHER LARGE AMERICAN IS ORGANIZING A BUREAU OF PUBLIC RESEARCH TO GATHER EXACT INFORMATION USED AS THE BASIS FOR THE SCIENTIFIC FIXING OF RATES FOR WATER, GAS, ELECT AND STREET RAILWAY TRANSPORTATION

MR. O. V. FRY

WHOSE PSYCHOLOGICAL TESTS OF ENGINEERS OF THE PENNSYLVANIA RAILROAD, AT ALTOONA, PA., SEEM TO DEMONSTRATE THE POSSIBILITY OF A METHOD BY WHICH THE CHOICE OF A YOUNG MAN'S LIFE WORK MAY BE RIGHTLY DIRECTED (See page 461)

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THE INTERSTATE COMMERCE COMMISSION

WHOSE AUTHORITY AS A RATE-MAKING BODY
WHICH AFFIRM ITS ACTIONS IN THE SU
CLAY HALL, MR. CHARLES C

THE TWO PERSONALITIES IN POLITICS

THE two most interesting subjects in politics are Mr. Wilson and Mr. Roosevelt. Both have impressed their personalities clearly upon the public mind. They are unquestionably the two most able executives whom we have had since the Civil War. They go about the job of being President with more efficiency than their predecessors. Both have a way of getting their ideas straight to the public and commanding a following which has given them a greater ascendancy over Congress than Presidents have had since the early days of the Republic. Mr. Wilson has a more extraordinary record for the seventeen months of his presidency than Mr. Roosevelt ever had in such a length of time, but Mr. Roosevelt maintained his extraordinary power for seven years to such an extent that his enemies clamored he was trying to be king. He has had more public offices and more political experience and more violent friends and enemies than any one else in public life. He probably knows more people than any one else in the country; and the physical buoyancy and courage of the man make a tremendous appeal. The President's quieter, less personal manner would not have gained him anything like Mr. Roosevelt's popularity had it not been accompanied by swift accomplishment. As it is, the very noiselessness of his accomplishment adds greatly to its effectiveness.

The two men are in a large measure contrasts. Even with his precision of thought and speech Mr. Wilson could hardly have dinned the iniquities of bosses into people's ears as Mr. Roosevelt has done. On the other hand, Mr. Roosevelt never eliminated a boss with the swiftness and dispatch with which the President defeated "Jim" Smith of New Jersey even though handicapped by the necessity of putting Senator Martine in the place "Jim" Smith hoped to get.

Once, after a fight in the Philippines, an American officer whom Mr. Roosevelt knew slightly was wounded. The doctors were afraid he would die, for he seemed to care little about recovery. The cable was interrupted at the time, but when it was repaired the first message through was an inquiry from the President of the United States about this officer's health. It made a new man of him, and from that minute he began to pick up. hat was characteristic of Mr. Roosevelt. On the other hand, to see clearly the moral aspect of the tariff question, which Mr. Roosevelt does not believe exists, is characteristic of Mr. Wilson.

Another contrast between the two is in their relations to Congress. Mr. Roosevelt fought the House and the Senate for what he wanted. Mr. Wilson goes to the Capitol and reads his message, and later coöperates with the leaders.

In practically everything they do the methods of the two men are different, and it is not surprising, therefore, that Mr. Roosevelt has already objected to almost everything that the present Administration has done. Nevertheless, the one thing that Mr. Wilson and Mr. Roosevelt have in common is significant of the temper of the times.

Neither Mr. Wilson nor Mr. Roosevelt is radical, nor conservative. They both believe in progress tempered with reasonableness. The radical Democrats would go much further than Mr. Wilson, and the most progressive Progressives are more radical than Mr. Roosevelt. He believes in taking more or less a middle course with all possible enthusiasm. This has led some papers to denounce him as a reactionary while, for the same utterances, others abused him for being a wild radical. He is neither; but a violent advocate of a far from violent programme.

Both Mr. Wilson and Mr. Roosevelt want to progress with reasonable speed, but the directions in which they propose to go differ greatly. Mr. Roosevelt wants a trade commission to regulate interstate trade because he believes that competition cannot be longer effective. Mr. Wilson wants a commission to make competition effective. Mr. Roosevelt wants a tariff commission to adjust tariff duties scientifically to protect American industries. Mr. Wilson believes in a tariff that will, after raising the necessary revenue, pro-

tect the American consumer by allowing foreign goods to compete in our markets.

The two strongest characters in political life, therefore, are progressive though of opposing principles. That in itself, even apart from the characters of the two men, is extremely interesting. Standpatism and extreme radicalism are both in the background, a condition the like of which has not existed for a very long time.

Aside from these two dominant figures the political world is unusually devoid of strong personalities. Mr. Underwood is probably the ablest conservative Democrat. He has an enviable record, yet no great nationwide popularity. Mr. Taft's defeat has taken him out of politics, and Mr. Root is retiring. With the possible exception of Senator Borah, the other figures in the old Republican ranks dwindle in size as the control of power is taken from them.

Among radicals Mr. Bryan is the strongest figure, but his loyalty to the Wilson Administration tempers the radicalism he might otherwise show. In the other party Senator La Follette's collapse in 1912 greatly hurt his prestige.

The defeat of the Republican Party has shorn its leaders of such strength as they borrowed from the fact that they were in office, and the Democrats, so long out of power, have not yet developed many strong personalities. Excepting Mr. Wilson and Mr. Roosevelt, our politics is not now filled with many commanding figures.

THE INTERSTATE TRADE COMMISSION

A FEDERAL Trade Commission is a very different kind of commission from any which we have had before. The Interstate Commerce Commission and the state railroad and public service commissions are bodies created to regulate monopoly. It was because the nature of the railroad and public service businesses was at least partially monopolistic that control by a commission was substituted for control by competition, which it was recognized did not have free play in these fields. The most important duty of a commission regulating *monopoly is the* fixing of rates or prices.

On the other hand, a Federal Trade Commission is an instrument for regulating competition. It is out of its province to fix prices, for that would tend to limit the competition which it is the duty of such a commission to foster.

It is a new kind of commission, therefore, with aims and purposes that are different from those of the commissions with which we are familiar.

It will be made up presumably of men whose combined knowledge and experience would include business practice, economics, and the statutes governing trade and commerce.

Its work is roughly divided into two divisions: first, getting information, and second, regulating business practices.

In getting information such a commission would do what the Bureau of Corporations does now and also some of the investigating that is now in the hands of the Department of Justice. It would make reports on specific industries for the President or Congress, such as the report Mr. Herbert Knox Smith made upon the oil business when he was commissioner. It would investigate business customs just as the Bureau of Corporations is now trying to find out whether or not it is good public policy to allow a manufacturer to name the retail prices of the articles he makes. Such a commission would also get facts for the use of the Department of Justice in suits under the Sherman Act. In these activities the Commission would be doing nothing new: it would be taking over tasks that are now performed by other agencies.

The one new effort to get the facts of business, that the Interstate Trade Commission might make, is the collection and publication of reports about interstate business similar to the railroad reports published by the Interstate Commerce Commission. Filing these reports has undoubtedly added expense and trouble to railroad administration, but the information gathered has been so valuable to railroad men, investors, legislators, and the public that even the railroads would not do away with the reports if they could.

Reports upon business would be similarly valuable. There is this difference,

r. Trade secrets do not exist in ing as they do in business. The business are greater and therefore y the profits to the successful are in business in proportion to the of the capital invested than in the ment of railroads. When, therefore, s of business begin to be presented public, there is likely to be a good misunderstanding of them. Trade would not be revealed, but private s has been in the habit of keeping iness private, and the enforced y would shock a good many, arly of the old school of business The new order of business men are to believe in publicity. It has helped the Steel Trust and other ies. A knowledge of business con- keeps capital out of unwise ven- cuts down the amount of unin- competition, which is economic and adds a good deal of stability ide. One of the motives for com- has always been that manu- s wished to find out what their vere doing. This motive will be at satisfied by publicity without endant disadvantages which com- brought.

egulating powers and duties of an te Trade Commission, however, more direct and greater influence s duty of collecting information, will almost certainly have wide ng power in the end whether it vith it or not.

ncrete example of the present of enforcing the Sherman Act ps the best way of seeing how an te Trade Commission would fit it. When the Supreme Court d the Tobacco Trust it was con- with the difficult question of what lve it into. Consolidations and and the dissolution of previously l corporations were so blended in ole combination that it was im- to separate them into the original The Supreme Court, therefore, that, to comply with the law with damage as possible to the property, nbination must be dissolved (in ds of Ex-attorney-General Wicker- sham) "not necessarily into its original elements, but, in effect, to be divided up into a number of separate and distinct integers, no one of which should threaten monopoly . . . The Supreme Court not only empowered but directed the Circuit Court [which arranged the dissolution], in case this lawful condition should not be brought about within a period of six or eight months, either to appoint a receiver of this vast property for the purpose of working out the ordered disintegration; or by injunction to paralyze and end its interstate business."

In a situation of this kind it would be the duty of the Interstate Trade Commission to work out the form of dissolution subject to the Court's approval, the reason for this being that the Commission's understanding of business practice should enable it to divide the combination into more effective units than would the Court.

Further than this there is a provision in the Newlands amendment to the trust measures that the Trade Commission, after a trust has been dissolved, shall watch the progress of the different parts to see that they do not get together again or otherwise break the law — in other words, to see that the dissolutions are effective. This is now, of course, the duty of the Department of Justice.

In these two ways the Commission would supplant and supplement existing agencies. Besides, it is proposed to give it power all its own. If it has reason to believe that a corporation is using unfair competition it shall ask the corporation to show cause why the Commission should not issue a restraining order against it.

A corporation so restrained could take its case to court, just as decisions of the Interstate Commerce Commission are taken to the Supreme Court for review. If not reversed by the Court the Commission's decision would be binding unless the Commission itself should set it aside, or modify it, to meet changing conditions.

There is a corollary to this power, however, which has not been granted in any of the measures introduced into Congress. It is the power to make positive as well as negative decisions. There is need for a tribunal which will tell a man what he

can do as well as what he cannot do. Not long ago a Western business man who was part agent and part competitor with a New York business man went to a former member of the Cabinet and asked if it would be legal to combine the two businesses. There would be certain obvious advantages in the combination (and not all combinations are unlawful) which would make them better able to serve the public and therefore would put them in a stronger business position. The Ex-cabinet member, a lawyer, had to confess that he was not sure whether or not the combination would be legal. The Westerner then went to Washington and inquired of an officer of this Administration if such a combination would be legal. The officer thought it would but he had to confess that his thinking so was no guarantee that the Supreme Court would think so, too, if some one should sue the combination after it was formed. So the Westerner and the New Yorker did not combine, for although they were convinced that the combination was good business and good morals they were unwilling to take the chance of being sued as criminals.

Now, if these two men could have appeared before a commission and explained what they wanted and gotten from the commission an outline of what they could do and what they could not do, their enthusiasm and energy would not have been killed by uncertainty. This is assuming that their combination was proper and for the public good. If not, the commission would have prohibited it. In other words, as conditions are now a man must take the chance of breaking the law, and take his case before the Commission or into court before he can tell whether or not his practices are legal.

The Interstate Trade Commission, then, would take over the work of all the governmental agencies that are now trying to maintain competition in interstate trade except that the prosecution of criminal cases would still be in the hands of the Department of Justice and the decisions of the Commission in all cases would be subject to the review of the courts as the Interstate Commerce Commission's decisions are now.

It should give business a little knowledge of its own condition, wh always helpful; give the public q relief against evil trade practices it should also give business a place t out whether its plans are proper, wi having to carry them out and suffer a Such are the reasons and hopes fo Interstate Trade Commission.

"THE WAR ON BUSINESS

DURING the discussion of the measures there has been the ural and habitual plea from opposed to such measures to stop war on business;" and with that plea been coupled the example of Germ which gives all honor and encourage to its trust makers, whereas we thr ours with fines and imprisonment.

There is in truth a very striking trast in the point of view of the governments. The German Govern does its best to increase German busi manufacturing, commerce, shipp everything. While we try to break shipping trust the Kaiser is instrum in getting the Hamburg-American the North German Lloyd steamship panies to cease their bitter competi The German Government uses its tar help certain industries, and in some even changes railroad rates for the purpose. The idea under this go mental activity is that if German bus increases Germany will be prospero

The system, of course, leads to fav ism. Not all businesses are large en or important enough to secure the Go ment's aid. The big businesses k better what they want than the l ones, and, where great profits car made by securing governmental favo course people seek such favor in all k of ways. We used to do it here, nc long ago, by campaign funds. We to give tariff favors to particular indust also. Mark Hanna believed in the man idea of a union of business politics, in which the Government sh help business and thereby keep the cou prosperous and "the dinner-pail full". Germany, where the three-class sy

of voting is in use, the poorer people have a much smaller voice in the Government than with us. The more well-to-do, who are naturally in charge of the manufacturing and commercial enterprises, control the Government, and the connection between business and government is very intimate. According to the prevailing German view this is all right.

On the other hand, our Government is the special agent of the consumer, in contrast to the German Government's guardianship of the German producers.

In a country of universal suffrage, in a democracy, this is almost certain to be the case, for the men in charge of productive enterprise are comparatively few, whereas every one is a consumer. By looking on all the people as consumers the Government can treat all more nearly alike than when viewing them as producers. And for this reason, despite a protective tariff that lasted for a hundred years and despite many other special aids to business, the conception of the great majority of the American people is that their Government is a government in the interest of all the people on their common ground as consumers. Our Government does not owe any business a living, we do not want it to give any business any particular favors, we are suspicious of any very intimate connection between business and politics because our experience with such connections in the past has been bad.

In the many discussions of business and government and their relations and the many references made to German laws and business practices, it is well to bear in mind that our aims and ideals and theirs are entirely different; that with a restricted suffrage they are trying what our universal suffrage has refused to sanction. It will be increasingly interesting to see the further comparison of the two ideas as time goes. It is a good test of whether all the people have as good economic sense as the few whose superior ability puts them in control of productive industry — in other words, it is a fair test of democracy.

The test will continue. If you choose to call it a war on business, the war will continue. It has been in progress for twenty years or more under all kinds of administrations and will continue whenever the consumers' interests are made subservient to the producers'. Once in a while, as during the Hanna régime, the producers obtained temporary special privileges, but the antagonism which came with them and the "war" in which they were taken away again cost more than they were worth. We are in the process of adjustment all the time, and though that may have its disadvantages it is a far safer and better condition than the German business world, intrenched in privileges, would be in, were the consumers' point of view to come into power there.

There is another cause of the continual "war on business," or process of adjustment. Our common law and our centuries of business training are based upon the actions of human beings, which are limited by human motives. Into these laws and customs we dropped corporate beings granted unlimited powers by the various states. Now the same motives do not always apply to corporate beings that apply to human beings, and laws and customs that are adequate for human beings are not adequate for corporate beings. This situation necessitates a great deal of readjustment, and will continue to do so.

In other words, "the war on business" is a continuous process of adjustment which is a necessity with us. Whenever it is stopped for a while it increases speed later on to catch up. The easiest way for all concerned is to take the adjustment little by little as we go along. Mr. Taft's failure to reduce the tariff gave us a little extra to do this last year, but when the trust measures go through now we shall be up to schedule for a while at least.

A BLOOD TRIBUTE TO BAD CONDITIONS

WHEN it was known that the Archduke Francis Ferdinand, heir to the Austrian throne, was going to visit Bosnia, the Servian Ambassador to Austria advised against it. When this advice was not heeded, he urged that at least the

wife of the Archduke be left at home. But the Archduke and his wife went and both after having escaped a bomb were shot. The reason that the Servian Ambassador warned the Archduke against visiting a part of his own dominions was that Bosnia is peopled chiefly by Serbs who are galled by Austrian rule. There are thousands of Serbs also in Herzegovina, in Croatia, and in Dalmatia. Like the Magyars of Hungary, who have struggled against the Germans of Austria to maintain the distinction of their race and language, the Serbs of these provinces (some but newly acquired by Austria), resent the attempts of the Magyars to obliterate their race and language. In this struggle of the Serbs there have been plots, persecutions, and scandals reaching even to the Austrian Cabinet.

The Serbs in the Empire are discontented. Austria looks with suspicion upon Servia as the instigator of this discontent. Servia, on the other hand, having seen the Austrian acquisition of Bosnia and Herzegovina, fears even for its own safety — feared much more before the Balkan War. The Servian armies that were victorious over the Turks and then over the Bulgars were trained and equipped with an eye toward Austria. The Archduke's assassins were not of the variety of assassin that kills to rid the world of the holders of power. It was not power in general, but Austrian power in particular, which they struck at. They were the products of misrule and racial bitterness. The conditions which brought them forth to kill the Archduke and his wife hold the possibilities of further bloodshed. The discontent of the Serb subjects of Austria and the little-concealed dislike between Servia and Austria are a serious menace to the peace and progress of the northern part of the Balkan Peninsula.

In Albania, the revolt against the Prince of Wied is sufficient evidence of the unsettled conditions in this ancient battleground — even without the ludicrous interference of our lately resigned Minister to Greece. The Balkan wars built no basis of peace. Bulgaria looks with hatred upon Turk and Servian alike. Servia has not forgiven Bulgaria for its sudden turning from ally to enemy; and on Servia's northern border is the ever present Austrian menace. Greece, too, is prepared for emergencies. Macedonia is in revolt. Austria and Russia still play their games in the Balkans. And probably the Turk will not be caught so unprepared again. The Near East is still the trouble spot of Europe. The murder of the Archduke is but another tribute exacted by the Balkan problem.

Peace and prosperity are of the soil. They come from the bottom up. They are created by an intelligent, homogeneous people under wise government. Neither the intrigues of great Powers, nor the wars of little ones, nor even the combined wisdom of Europe can parcel out a country so as to make peace and prosperity so long as ignorance, tyranny, and racial antipathy are as prevalent as they are in the Balkans. The task in the Balkans is the long, slow task of educating and enlightening peoples who have been isolated, uneducated, and tyrannized, robbed, and killed for many hundreds of years.

THE BIG TASK IN MEXICO

FUNDAMENTALLY, what is true of the Balkans is true of Mexico, although the two countries contain very different peoples. The task is one of education and enlightenment. Enlightenment comes with schools, with commerce, with railroads. But schools may be used to create a tyrannical oligarchy, and commerce and railroads may be the instruments of exploitation and extortion. Education and commerce must make beneficiaries and not victims of the Mexican people. Of the fifteen million in Mexico at least twelve million are unfit. They are illiterate, and filled with a suspicion bred of ignorance and abuse. The fundamental problem in Mexico is to turn these twelve million from peons into men. This, again, is a long, slow task.

And in the meanwhile who is to govern Mexico, and how? What is there in Mexico to justify the President's patience in giving that country a chance to make a government that will start on this great task? The oligarchy under Porfirio Diaz

ıt have this great duty in view, it was made up of the ablest men tico. Madero did, but he was not enough even to begin it. Huerta nlightened than Diaz. It is beyond nception of an illiterate fighting ke Villa, and Carranza measures up d less to the needs of the country : goes on. From across the border liverer is not in sight. If, in the of time, he fails to appear we shall o supply him, temporarily, in the of a United States Army officer, lid in Cuba.

we have not come to this. One / after another in Latin America en plunged into anarchy and has d. Not only the Argentine, Brazil, hile, whose friendly offices have us to avoid intervention in Mexico but Colombia and Venezuela have d from despotism and revolution mewhat higher plane than before. ıas happened there may happen in , if we can manage to stay out of untry.

ever, even if the right man does , we need not hope for the imme- ettlement of the Mexican problem. ay will merely have been cleared in the task. The task itself will any years during which there will be the possibility of such a critical n arising as now confronts us. ılightenment of an illiterate and people is a long job. For a foreign it is also a thankless job. If we oid that task, we shall not only the suspicion of Latin America and in in some degree Mexico's friend- ıt also escape a difficult undertak- which there is little honor or profit ıch danger and expense.

JR FOLK-LORE BALLADS

ı certain rural district in Virginia ry year the Negroes gather and act story of one of the old ballads of tch border. These Negroes picked rom white people who had it by f mouth from their ancestors who cross the water with the song in emories. The ballad has lived for centuries in this country without being written down. Thousands of miles from the place of its origin it holds the attention of the members of an alien race, who know nothing of the conditions or the people among whom the story grew. This is a fair example of the inherent interest in the narratives of these old folk-songs.

In his sixteen years of research the late Professor Francis J. Child found that there were 305 old English and Scottish ballads. Professor Child noted incidentally that some of these ballads — he found seventeen — were current in the United States. A year and a half ago Professor C. Alphonso Smith, of the University of Virginia, organized the Virginia Folk-Lore Society to find what of these old ballads are current in Virginia, and the United States Bureau of Education is lending its aid in starting similar societies elsewhere. So far, in Virginia, chiefly in the mountain counties, fifty-six of the ballads have been discovered. In the hills of Virginia these old songs still pass from father to son and from mother to daughter, songs which for vigor of narrative, vividness of portraiture, simplicity of style, and fulness of content are not surpassed in the history of American or English song.

So far, more of these ballads have been found in Virginia than elsewhere, but that is probably chiefly because they have been sought there more diligently. They are known to exist in Maine, Massachusetts, New York, Pennsylvania, in the Carolinas, and even in some parts of the West. It is high time that they were collected and preserved so that they may become a part of our life, for we come by them honestly, and we have nothing else so good to take their place.

THE INTERMOUNTAIN RATE CASE

IN THE decisions handed down by the Supreme Court just before its adjournment, there was a very striking endorsement of the work of the Interstate Commerce Commission. And the decisions of the Commission thus endorsed were of themselves of wide significance. The decision in the Shreveport Case declares

that interstate rates are more important than state rates and that, therefore, no state can set its boundaries up as a barrier to commerce for the benefit of its manufacturers or merchants. The Intermountain Rate Case opens the way for the Interstate Commerce Commission to deal with rates in a more comprehensive way than heretofore.

The Intermountain Rate Case grew out of a former practice of the railroads in charging on commodities carried westward to intermediate points in Washington, Nevada, and Arizona — the Intermountain territory — higher rates than were charged on similar commodities that were destined to points on the Pacific Coast.

The railroads contended that they were justified in charging more for the shorter than for the longer haul, because on the through traffic they came into competition with the steamship lines operating from coast to coast, and had, therefore, to meet very low rates on that traffic. When they got a shipment of goods for one of the intermediate points not subject to such competition, it had been customary for them to treat it as if it were to go first to the Coast, and then back to its destination; and to fix the charge accordingly by adding the local rate to the through rate. For example, shipments from New York to Phœnix, Ariz., would pay the transcontinental rate from New York to San Francisco and the local rate from San Francisco back to Phœnix.

In an earlier decision, in 1911, the Interstate Commerce Commission partly admitted the contentions of the railroads. The Commission decided, however, that a readjustment of the old rates ought to be made. It reasoned that the ocean competition which the railroads were compelled to meet grew less as the territory in which the traffic originated was farther and farther removed from the Coast and on that basis worked out a compromise arrangement. It decided, for example, that on traffic originating in the zone bounded on the east by an imaginary line drawn through St. Paul, no higher rates might be charged to intermediate points than to points on the Pacific Coast; but that on traffic originating in the ; between St. Paul and Chicago 7 per c more might be charged; and so on thro different zones until a maximum of per cent. increase was provided for traffic originating east of Pittsburg.

Subsequently the Commerce Co which has since been abolished, called upon to review this decision an finally held that the Interstate Comm Commission was without authority to rates in that way. But the Supr Court settles the question by ruling the Commission has full authority u the Interstate Commerce Act.

The chief significance of the Supr Court's decision in these cases lies i assertion of the Commission's righ make what are known as "blanket" r according to its own judgment. It previously been supposed that its autho in matters of rate making did not ex beyond prescribing rates in partic instances where the existing rates found to be unreasonable.

Railroad men are practically unanin in the opinion that the effect of "Intermountain" decision will be reduce materially — at least until r can be readjusted — the revenues of transcontinental lines.

It puts them, also, in a less favor position to meet the increased ocean c petition which is expected to dev after the opening of the Panama Ca But they are hopeful that they may able to convince the Commission of propriety of advancing many exis rates, which, as they believe, are less t reasonable, and thus compensate much of the loss that will be suff meanwhile.

Moreover, the power, thus newly fou to make blanket rates, added to power given in the Shreveport C puts the Commission in a position handle rate questions on a broader b than heretofore when it was restricte deciding on the fairness or unfairness particular rate after some one had c plained of it. By one decision of blanket rate type it can accomplish much as by twenty decisions at specific rates.

E SUPREMACY OF INTER-STATE COMMERCE

FEW years ago the merchants of Shreveport, which is an important commercial centre in northwest-ɔuisiana, were enjoying a thriving n eastern Texas. There they came in tition principally with the merchants llas and Houston. In time this ' grew so strong that it became of ; concern to the merchants of Texas, rompted them to look around for neans of saving for themselves the ss which was going in increasing e over into Louisiana. They found, y believed, that the basis of the port merchants' successful compe- was the rates which the railroads harging to carry the goods.

ɔrdingly, the matter was laid before xas Railroad Commission, and that ission ordered a readjustment of on traffic within the state. The chedule placed the merchants of ana at a great disadvantage. For le, under this schedule a rate of 60 would carry first class traffic east- from Dallas into the competitive ry a distance of 160 miles; whereas, the schedule that was maintained : railroads on interstate traffic, the rate would carry goods into Texas hreveport only 55 miles.

merchants of Shreveport believed his was unjust discrimination, and rotested to the legislature of Louisi- hich in turn instructed the railroad ission of that state to seek relief the Interstate Commerce Commis- The latter upheld the merchants of port in their contention of discrim- ı, and told the railroads that they not continue to charge higher rates mmodities moving from Louisiana exas than were charged on commod- ıoving equal distances from Dallas ouston toward Shreveport.

the Federal Commission did not ıether the railroads should establish ty by lowering the interstate rates Shreveport, or by raising the intra- rates from Dallas. Both had been l as reasonable by competent author- ity. So, to find a way out of their perplexity, the railroads appealed to the Commerce Court, which decided that the discrimination against Louisiana might be removed by raising the rates on Texas traffic. However, the railroads, to make a complete test, challenged the validity of this decision before the United States Supreme Court.

This is the history of the Shreveport, or Texas-Louisiana, Rate Case, which was settled by the court of last resort early in June. By this final decision, handed down by Mr. Justice Hughes, the rulings of the Interstate Commerce Commission and of the Commerce Court are upheld. It is settled that no state may undertake to shut itself in commercially, and throw artificial protection around the business of its citizens, by fixing on railroad traffic within its borders rates which are injurious to interstate commerce. This is a reassertion of the theory of our Constitution referred to by Commissioner Lane in the original report on the Shreveport Case that "a state may not live to itself alone, either politically or commercially."

The Supreme Court is careful in this decision to point out that Congress, through the Interstate Commerce Commission, does not possess the authority to regulate the internal commerce of a state. But it does possess the power to protect interstate commerce, even to the point of regulating rates within state boundaries whenever their indirect effect upon commerce that is moving to points beyond is to set up discrimination against shipping centres outside the state. This was the point for which the railroads contended in the Minnesota rate cases that were decided in June, 1913. It was denied then, however, because the court held that there had been a failure to show discrimination. In the Shreveport Case, this phase of the controversy had been investigated and determined by the proper authority, the Interstate Commerce Commission.

The Shreveport rate decision has been welcomed by the railroads of the country generally, because it has settled the supremacy of the authority of the Federal Government over that of the forty-eight

states, where the two are in conflict. Thus a great deal of confusion will be avoided in the future, and at least a semblance of order brought out of the chaos of unwise and conflicting decrees relating to many important phases of railroad operation.

AMERICAN BANKS IN FOREIGN FIELDS

THE National City Bank of New York is the first to take advantage of the new freedom given to our commerce and finance by the Federal Reserve Act. The directors of the bank have authorized its president to apply to the Federal Reserve Board for permission to open branches at Buenos Ayres and Rio Janeiro. The bank plans to establish branches and agencies to help the export and import trade of the country.

The old National Bank Act prohibited the creation of branches of national banks. The Federal Reserve Act removes this prohibition. Moreover, it also allows banks which are members of the Federal reserve system to deal in drafts or bills of exchange against exports or imports, and to discount such drafts at the Federal reserve banks, and these Federal reserve banks can deal in foreign bills of exchange in the open market when they see fit.

There is no special privilege in these provisions of the new Act. They merely allow American banks to do what has been customary for foreign banks to do; merely set commerce and finance free.

But this liberation will mean a great deal in our newly awakened effort for world markets. American exporters heretofore have usually had to do business through German or English or some other foreign banks. These banks are closely allied with the German or English or other foreign competitors of the American exporters. This has put American trade under a great disadvantage, for it is as hard to compete against banking discriminations as it is against railroad rate discriminations.

As our banking institutions grow abroad, our exporters will find themselves as well served as their competitors, which will be a tremendous help to them in the struggle in which up to now they have been greatly handicapped.

AN IMPROVED RECLAMATION POLICY

THE Reclamation Service, as every one knows, has for some years been engaged in irrigating and settling large tracts of public lands and incidentally some private lands in the West. The funds for its operation have been derived, in the main, from the sale of public lands in the Western States.

The Service has done great benefit to the dry regions, a benefit which will grow more apparent as time goes on and the settlement of the irrigated lands works itself into permanent form. As the Government has to treat every one alike, it is prevented from selecting its settlers. Consequently, many who are doomed to failure must be allowed to take up farms, and the prosperity of the projects is delayed until these incompetents fail and move away. This, and the fact that the Government has done the work without local financial assistance, has led to criticism from Western people. People are rarely satisfied with things which are done for them in which they do not share the responsibility and cost. It is a wise policy, therefore, which Secretary Lane has begun, of asking the aid and coöperation of the Western States in reclamation work. It is likely not only to increase the funds available for the work but also to decrease criticisms thereon. Oregon has appropriated half the money necessary for the investigation of possible projects on the Deschutes River and in central Oregon. Washington and California have made appropriations for similar purposes. These are all good signs of a new spirit in the work.

TO KEEP OUT SOUTHERN ITALIANS

IN THE four years, 1910-1913, 821,000 Italians came to the United States. Comparatively few of them came from the north of Italy which now, as in historic times, furnishes the brains and ability of Italy. What we get is chiefly

ındersized, illiterate overflow from nedieval Naples and Sicily.

:ording to Professor Edward A. writing in *The Century Magazine*, g our foreign born the Italians "rank t in ability to speak English, lowest oportion naturalized after ten years' :nce, lowest in proportion of children hool, and highest in proportion of ·en at work." He continues:

:rage passengers from a Naples boat a distressing frequency of low foreheads, mouths, weak chins, poor features, skew small or knobby crania, and backless . Such people lack the power to take al care of themselves; hence their death- ı New York is twice the general death- nd thrice that of the Germans. No other ,rants from Europe, unless it be the Por- ıe or the half-African bravas of the Azores, so low an earning power as the Southern ıs. . . .

t be demurred that the ignorant, super- ıs Neapolitan or Sicilian, heir to centuries ırbon misgovernment, cannot be expected ıve us his race mettle, there are his child- orn in America. What showing do they ' Teachers agree that the children of the ern Italians rank below the children of orthern Italians. They hate study, make ›rogress, and quit school at the first op- ıity. While they take to drawing and , they are poor in spelling and language ery weak in abstract mathematics. In ›rds of one superintendent, "they lack the niences for thinking." More than any children, they fall behind their grade. are below even the Portuguese and the while at the other extremity stand the en of the Scandinavians and the Hebrews.

ded to all this they have the worst nal record of all the peoples that come r shores.

is time that we stopped this influx · by a general law excluding undesir- or by a law aimed specifically at the ıern Italians, similar to our immigra- aws against Asiatics.

e theory on which this Republic rests ıt every child shall get an education :very man a chance in life. But a :e is not sufficient to make a useful n out of a man "without the conven- ; for thinking." An increase of ıern Italian labor means necessarily crease in paternalism, for they can- not take care of themselves. They are a direct menace to our Government because they are not fit to take part in it.

THE DEATH TOLL OF FOG

A LITTLE more than two years ago fog caused the loss of the *Titanic*. One thousand five hundred and ninety-five people were drowned in that disaster. Last winter the coastwise steamer *Monroe* was run down in a fog off the Virginia Capes and forty-one people lost their lives. On May 29th the *Empress of Ireland*, outward bound, was rammed by the collier *Storstad* in the St. Lawrence River in a fog. In this disaster the death toll was 1,024. On June 13th, in an early morning fog off the Massachusetts coast, the Hamburg-American liner *Pretoria* struck the American liner *New York*. Only the ready seamanship of Captain Roberts of the *New York* prevented any loss of life. Four days later the British hospital ship *Maine* went ashore in a fog off the coast of Scotland and, though aid summoned by wireless saved the lives of the patients on board, the ship was almost a total wreck. On the same day the *Kaiser Wilhelm II* and the *Incemore* collided in a fog in English waters and both had to put back to port. On the next day, which was still foggy, the North German Lloyd *Buelow* ran on the rocks of the English coast, as did also two private yachts, one English and one American, and the steamship *St. Nicholas*. In the meanwhile the Hamburg-American *Etruria* and the English steamer *Copsewood* collided in the English Channel. On June 23d, the Red Star *Gothland* struck on Gunner Rocks, near the Scilly Islands of England, in a dense mist. The next day, the *Esperanza*, a large power yacht, ran on the shoals off the coast of Connecticut.

The sea lanes are crowded with ships, many of them under great commercial pressure to make speed. The ever increasing number and speed of the ships add to the dangers which fog has always brought at sea; and up to the present our naval construction and sailing practices have not adequately met this added danger. Fog horns, wireless, and the ordinary submarine bell all are useful, but all to-

gether seem inadequate. There is, therefore, every reason to look with interest upon the efforts to perfect a wireless apparatus that will record the distance and direction of other ships or land wireless stations and the effort, already successful, to use wireless telegraphic signals under water as described by Mr. Burton J. Hendrick elsewhere in this magazine.

A STORY ABOUT SAWDUST

WE are coming to realize more and more that it is harder to reach a fairly efficient standard of distribution than it is to attain a good standard of production and that our selling deficiencies still set a limit to our ability to make things. There are many fertile spots in the United States in which the farmers are hampered in the use of their land because of their inability to market any but a few staple crops. Even in sections where marketing facilities are supposed to be well developed there is opportunity for striking improvement.

For example, the grape growers of California have recently enlarged tremendously the possibilities of their market. They have learned how to ship grapes half way around the world and to sell them in competition with the grapes from Southern Europe. Last winter an experimental shipment was exported to England and sold in the London market. Several thousand drums or barrels were sent to the West Indies and South America. They sold abroad at prices fully equal to and sometimes in excess of the prices paid for Spanish Almeria grapes.

The secret lies in the method of packing; the Californian grape-growers have discovered that coarse redwood sawdust is a cheap and effective substitute for the granulated cork that is used in packing the Spanish grapes.

Three years ago they decided that something must be done to take care of the product of the increasing number of vineyards. Under existing conditions it was necessary to market the greater part of the Californian grape crop within six weeks or two months after picking, and any great increase in output during such a limited season meant a glutted market and low prices. The area over which the fruit could be distributed in sound condition was limited.

The coöperation of grape growers and governmental investigators led to an improvement in both package and filler which has greatly lengthened the period of storage and so extended the radius of possible shipment. Practically all the Californian grapes have been marketed in splint baskets inclosed in slatted crates. The new package is a tight drum of thin cottonwood, lined with heavy strawboard. The smaller size will hold about eleven pounds of grapes, and the larger, thirty-three to thirty-six pounds. The filler used is a coarse redwood sawdust, cleaned of dust and slivers. It has been demonstrated that this sawdust is as effective as cork, if not more so. The prices paid for grapes thus packed are sufficiently high to cover the additional cost.

In addition to grapes exported, the new method resulted in a larger domestic sale. The shipments from the San Joaquin Valley to the principal markets of the United States and Canada increased in 1913 to seventy carloads, or twice the amount shipped in 1912.

For many years the public has been interested in the success of agricultural scientists in developing more prolific varieties of plants. This will, of course, continue, but with it will be linked stories of deep significance woven around such things as sawdust filler, eggs and berries by parcel post, varieties of packing, distribution agencies, and the like.

THE OTHER FIFTY CENTS

USUALLY when we spend a dollar about half of it goes for the raw material and the labor that are used in making the article we purchase. The other fifty cents is what we pay for having it sold to us. Wholesalers, retailers, transportation agencies, and advertising mediums divide it, sometimes in one combination, sometimes in another. The great struggle in our commercial life is to reduce that fifty cents. Of course, the selling cost is not always exactly 50 per

of the retail price. In some articles more, in others less, but on the aver- t is certainly not much, if any, less that. A more or less dim realization is fact has led to a popular outcry st the middleman, as if he had cre- this selling cost entirely for his own it. The truth is he is the victim of itions much as are the rest of us. not in control of the situation. In places and in many trades he is g a difficult time to make a living.

our more primitive industrial days nany little manufacturers who could ford to bear the burden of a sales that could reach the scattered retail s which sold their goods sold to whole- . By combining a great number of es from different manufacturers the salers and jobbers, or middlemen, were ed to support selling agencies that reach all the retailers in their territory. etailers in turn sold to their immediate ities. This was the best machinery could be devised at that time, and for parts of the United States it still is.

t in later days our efforts to cut the cost of distribution have in- d many new elements into the machin- of distribution. Mail order houses competing with the local retailers. e manufacturers with their own agen- are also invading their field. Other facturers whose volume of business ants it have ceased to deal with esalers, and now deal direct with the lers — or else sell to both. Retailers a chain of stores have established esale departments for themselves, and esalers have established retail stores themselves, and some wholesalers gone into the manufacturing busi-

Our whole machinery of distribu- is in a state of flux and every producer es that his chances of salvation de- upon getting his goods from his ry to the consumer with as little nse as possible. This is the problem e high cost of living.

have not much accurate data on subject. Every manufacturer strug- with his own problems, or at best sses them only with the other mem- of his trade. We could profit by more extended and scientific investigations. The science of selling offers a great field for study for the Department of Commerce and for the many business schools which are springing up in our colleges. Commerce is not mere money-getting. It is a science, as banking and law and medicine are sciences. It should be studied as such, for with such study comes not only greater efficiency but a higher standard of ethics as well. There is no more pressing public service to be done than the discovery of the best ways of reducing the cost of distribution and of elevating business to the standards of a profession.

A UNION OF BUSINESS AND POLITICS

A NEW and interesting example of the spirit of progress which now animates our towns and cities is the plan adopted by Beaufort, S. C. Beaufort has about 4,000 inhabitants, and it has been in the habit of getting along like other small towns with an underpaid town government and a Board of Trade whose activities are hampered by lack of funds. But the town has now decided on a new régime. Its plan is to have a city manager to carry on the town's business and a paid secretary to do the Board of Trade's work and to have them one and the same man. The town and the Board of Trade between them can afford to hire a good man and both jobs do not involve more work than a good man can handle.

In a large city, where the city government's activities are not easily kept track of, this combination of business and government might lead to complications. The other interests of the town might be overshadowed by its commercial efforts. But in a small city where mouth to mouth publicity is nearly automatic, there is not much danger of the town's welfare suffering at the hands of trade.

In other ways the Beaufort plan seems to offer many advantages which might well be copied by other small towns whose business men are public-spirited enough to join their contributions to the public taxes to get a good man to take care of the public affairs, municipal and commercial.

WHAT ABOUT PAYING ASSESSMENT

HE WAS one of the most sorely perplexed investors whom any financial adviser was ever called upon to try to help. He lived in Pennsylvania. About two years ago, he said, he had made his first venture into the market for securities by putting a substantial part of his savings into the preferred stock of a large public utility company, which was then bidding actively for the favor of the investing public. In doing so, he had taken thought of the element of chance, which he realized was present in all business. But he liked the idea of making in that way such contribution as he was able "to help his richer brother," as he said, "keep the wheels of production in motion."

The company in which he had decided to become a small stockholder was not a mushroom affair. It had been in existence for more than twenty years, had paid dividends practically from the start, and, so far as could be made out by a man of average ability to judge such things, it bore every earmark of financial stability. Moreover, it had the backing of bankers who appeared to be resourceful, and seemed to enjoy the confidence of investors. So he had felt that the element of chance in this particular enterprise was small.

Things had gone along all right for about a year, when the investor began to hear disturbing rumors about the condition of his company. Close upon the heels of those rumors came the announcement of the appointment of receivers, and it was then that he had learned for the first time about the interest of the company and its bankers in a number of vast undertakings so extremely venturesome in their very nature that, as he afterward declared, he would not have required the wisdom of a financial Solomon to discover in them the possibilities of the public utility company's undoing.

It was in this connection that the investor admitted he had been remiss. He had not gone far enough in his investigation. Still, he felt that the sponsors o investment had not been entirely sin and his resentment had increased whe had found it difficult, during the tim company was in the hands of receive find out where he stood. He had com last, to feel that perhaps this was the of all business — to put it squarely the man who invests his savings to cover for himself in every case the worthiness of the financial ship. An believed that this was wrong — tha attitude of those in control of big bus toward the small stockholder ought an attitude of "more responsiveness more responsibility."

However, there was a phase of the ter in which his concern was more i diate. A reorganization plan had agreed upon. He thought that it perhaps as much chance as any plan have to cure the business disease o company, as it had been diagnosed b experts, even though it should fail to him of the shock of destroyed confid One part of the plan called for a fu contribution from him in the shape large assessment on his stock. The tion was, should he take another ch Would it pay to put more money in?

That question is the point of this s It is a pertinent question now be so many corporations of necessity e are undergoing or are about to u go financial reorganization of the which puts upon the shareholde and in some instances upon the j bondholders, too — the burden of plying the millions of new capital they require.

The common need of all these com ies is immediate cash, which must o for the most part, from the pocke those security holders whose stake the successful outcome of reorganiz is greatest. They are the stockhol the proprietors, the sharers of the p when profits can be made.

Thus it is that so many investors

: them now the dilemma of assess- : "Will it pay?" Scores are asking uestion in much the same spirit of essness as the investor of the story. tunately, it is a question to which ıost careful analysis of facts and cir- :ances rarely results in producing ıing like a definite answer. In con- ng the question, the important thing borne in mind is that assessments are rule compulsory in the sense that ty holders who refuse to meet them :nied participation in the reorganiza- and therefore in whatever subsequent erity may result from it. But no ly means have yet been found to cal- : possible future prosperity.

ieems timely, however, to remind in- rs who are thus perplexed that many e have lived to regret that they did ›ay their assessments. Here is an :t tragic case in point, as recalled the day by a veteran banker:

acquaintance of his had been an in- r in the stock of the old Northern c Railroad, which fell upon financial ılties and was placed in the hands of 'ers during the panic year 1893. ess toward reorganization was ham- by a long series of bitter personal gles among officers and directors, ı the eyes of the holders of thousands ares of stock the company's difficul- ıad thus been unduly exaggerated. ıat, when an agreement was finally ed in 1896 upon a reorganization which called for assessments on both ›referred and common stocks, there many dissenters who decided to get ıther than pay up.

e years later occurred the memorable thern Pacific Corner," an incident to ontest between two powerful syndi- for control of the road, which had been restored to prosperity. One the investor's widow, while reading 'spaper account of the events of that l of excitement, happened to remem- ıat she had once seen among her hus- s effects some kind of a document ng to Northern Pacific. She brought :h, and was able to make out that it ı certificate for a hundred shares of . She hastened to a broker and told him she wished to sell. The price was at that time rapidly climbing toward a thousand dollars a share. But, alas, for her it all meant nothing. Her certificate proved to be worthless. The assessment had not been paid.

That was, of course, an exceptional case. Yet there were hundreds of investors in the stocks of other leading railroads — such as the Santa Fé, the Baltimore & Ohio, the Reading, and the Union Pacific — that went through receiverships in the gloomy years between 1893 and 1898, who felt the sting of similar disappointment. It is, for example, not difficult to imagine what might be the feelings to-day of investors in the stock of the old Union Pacific who, when given the opportunity to participate in the reorganization of 1897, could see nothing but the immediate necessity of paying the unwelcome assessment of $15 a share, and who allowed their holdings to lapse for that reason. A study of these big assessments reveals the fact that the stockholders who were gifted with a sufficient amount of imagination to see possible values ahead found early encouragement. For the shares of all these roads were quoted in the open market within six months after reorganization at prices nearly equal to the assessments and previous market quotations combined.

It can scarcely be denied that these experiences of the past are reassuring in many ways. But from them it does not necessarily follow that present security holders in Rock Island, Wabash, St. Louis & San Francisco, or any of the other companies with dark records of failure which they are trying to obliterate, may expect like success to attend the efforts of the reorganizers. To meet whatever assessments may be called for is the only chance these investors have, but only time can tell whether it will pay to take it. The owners of these stocks should be reminded, however, to look at both sides of the question — to realize, first, that unless the assessments are paid they forfeit all chance to share in possible future profits, and, second, that if the assessments are paid they are paid to help a struggling enterprise that may or may not survive.

THE NEW MORALS OF ADVERTISIN

HOW THE ASSOCIATED ADVERTISING CLUBS OF AMERICA HAVE HELPED CLOSE THE DOORS OF NEWSPAPERS AND MAGAZINES TO QUACK MEDI CINES, FRAUDULENT SALES, AND OTHER VICIOUS ANNOUNCEMENTS — THE "STANDARDS OF PRACTICE" ADOPTED AT TORONTO — MAKING THE BUSINESS OF ADVERTISING A SCIENCE AND A PROFESSION

BY

HERBERT S. HOUSTON

A SWIFT and sure transformation is in progress in the great business of advertising. And oddly enough it is being wrought so quietly that the public knows little about it. The reason is that the transformation is coming from within the business itself.

The patent medicine man in print is coming to be nearly as rare as the patent medicine man on street corners. To-day the bill boards bear patriotic lessons from the life of Grant or the manger story of Bethlehem, instead of the flaring and often indecent announcement of the burlesque show. What has happened, anyway? The change has come upon us as quietly as the gentle rain from heaven. But behind it and through it is one of the big, dynamic movements of modern times.

Ten years ago a group of advertising clubs that had existed independently in several cities formed the Associated Advertising Clubs of America. Each of these clubs was, and has continued to be, the centre of advertising interests in its community, its membership being made up of the merchants, publishers, advertising managers and writers — of every one in any way connected with advertising. Each of these clubs had worked alone, in its own field and in its own way, to improve advertising conditions. Then the spirit of coöperation brought the units into a strong organization that has worked with surprising success and that has accomplished surprising results. To-day this organization is composed of 128 clubs with 12,000 members, besides having 14 departments, representing different advertising interests. In Toronto the annual vention of this many-sided organiza has recently been held. There cam attend it several thousand men f every state in the Union and from Can with a fair representation from abroad.

If Goldwin Smith could have lived t this great gathering in his adopted cit would have felt, doubtless, that it sented many bewildering paradoxes. E one that attended it was in business, the spirit manifested throughout the ceedings was not commercial but eth This was the message of the two addresses, by Dr. J. A. Macdonald, e of the Toronto *Globe*, and Sir Edm Walker, on the 100 years of peace an English-speaking peoples; and it tinued to be the message, repeate innumerable ways by President Woodl and through nearly two hundred addr and papers that followed.

To the superficial listener this et quality might have been attributed to oratorical fervor, but it would not required a Goldwin Smith to disc quickly that this view was far a There was substance to the ethical sage, more than sound. Convincing of this was given before adjournmen the adoption of definite ethical cod each department, called Standard Practice. These were clear-cut pl of upright business conduct. For exan the standards adopted by the departm of retail advertising — they were dr by Mr. Manly M. Gillam, for many the advertising manager for John W maker — began with this broad pl "Each head of a retail enterprise sh

dedicate his best efforts to the cause of business uplift and to this end should pledge himself to the following standards." In the ten pledges are such things as these: "To permit no wilful misrepresentation of merchandise; to see that comparison values in printed announcements are with prices previously prevailing in his store, unless otherwise distinctly stated; to resent strenuously — to the point of withdrawal, if necessary — the 'make up' of his advertising in a newspaper next or near announcements offensive to good taste or of a debasing nature; to urge on newspapers that the same care should be shown in admitting advertising to their columns that would be shown in admitting news matter." In the standards adopted by the magazine department the magazine publisher committed himself "without reservation, to the Truth emblem of the Associated Advertising Clubs of America; to ceaseless vigilance to see that every advertisement he publishes shall measure up to that Truth emblem; to definite statements and to independent audits showing the quantity and distribution of his circulation;" and to other things on a high plane of business ethics that were equally definite.

And the newspapers, the bill board advertisers, the trade paper, farm paper, and religious paper publishers — indeed, all the departments — adopted standards of practice that measure up to the same high level. At the convention in Baltimore a year ago the organization adopted a business creed that was commented on generally as a broad programme of commercial righteousness. But it was a general declaration of principles. At Toronto this creed was translated into the definite terms of practice. And it is this practical, structural reformation of advertising from within that is the significant thing in the movement.

Instead of waiting for the pressure of public opinion to effect changes; or for such an investigation as that which was made in life insurance several years ago, or as the recent New Haven Railroad inquiry; or for any other outside influence, it was apparent that advertising was cleaning its own house, with quiet and thoroughgoing efficiency.

The Vigilance Committee reported through its chairman, Mr. Harry D. Robbins, of the banking house of N. W. Halsey & Company, that, due largely to the activity of the clubs, honest advertising laws had been enacted in the following 19 states: New York, Oregon, Massachusetts, Ohio, Minnesota, Washington, North Dakota, Colorado, Pennsylvania, New Jersey, Nebraska, Iowa, Indiana, Michigan, Idaho, Connecticut, Alabama, Rhode Island, and Wisconsin, and that a Federal statute was pending in Canada, as well as a Federal statute before Congress in the United States.

LAWS FOR HONEST ADVERTISING

These laws have been modeled to a considerable degree after a statute that was prepared by *Printers' Ink*, and in six states this precise statute has been adopted, as follows:

> Any person, firm, corporation, or association who, with intent to sell or in any wise dispose of merchandise, securities, service, or anything offered by such person, firm, corporation, or association, directly or indirectly, to the public for sale or distribution, or with intent to increase the consumption thereof, or to induce the public in any manner to enter into any obligation relating thereto, or to acquire title thereto, or an interest therein, makes, publishes, disseminates, circulates, or places before the public, or causes, directly or indirectly, to be made, published, disseminated, circulated, or placed before the public, in this state, in a newspaper or other publication, or in the form of a book, notice, hand-bill, poster, bill, circular, pamphlet, or letter, or in any other way, an advertisement of any sort regarding merchandise, securities, service, or anything so offered to the public, which advertisement contains any assertion, representation, or statement of fact which is untrue, deceptive, or misleading, shall be guilty of a misdemeanor.

REFORM BY MORAL SUASION

Mr. Robbins also reported that during the last year 648 cases had been reviewed by the vigilance committees of local clubs. Of these, 379 cases were successfully handled by moral suasion. During the year only 42 cases in the various states were actually brought to trial, and of these 24 resulted in convictions, 6 were lost, and 12 are still pending.

But this collective activity of the clubs represents only a small part of the definite results that are coming in connection with this stimulating commercial movement. Publishers themselves are seeing to it, without direct suggestion or pressure from the clubs, that their advertising columns are kept clean. The magazine publishers led the way in this independent cleaning up about ten years ago. Largely through the leadership of their organization, the Quoin Club, they individually set up standards that excluded whisky advertising, all get-rich-quick or speculative advertising, and patent medicine advertising, and they adopted the policy of immediately eliminating the announcements of every advertiser who treated their readers unfairly.

HOW THE "TRIBUNE" CLEANED UP

The newspapers in all parts of the country are being stirred up to their responsibilities, in many cases through the advertising clubs, and many of them have set up unusually rigid and high advertising standards. The Chicago *Tribune* in the last year or two has established an especially strict censorship. Among the things it excludes are loan sharks, fake furniture sales, medical advertising, dentists, doubtful financial and land advertisements, speculative financial advertisements, stock propositions offering extravagant returns, fake clothing and raincoat sales, and whisky advertising.

Mr. William H. Field, the business manager of the *Tribune*, says that during 1913 the combined advertising printed by three other Chicago papers that the Tribune refused amounted to 3,705 columns but that, notwithstanding this loss, the *Tribune* showed a gain of 3,936 columns of advertising over the preceding year. It would seem that a clean advertising policy is likewise a profitable advertising policy.

A TUSSLE WITH THE QUACKS

One of the most dramatic contests of the year has been in New Orleans. A few years ago three young men, Messrs. Thomson, Ballard, and Newmyer, got control of the *Item*. It carried practically every kind of advertising that a newspaper ever carries. The young publishers set their faces to the front and began a gradual clean-up. Last October they went to the point of setting up an advertising censorship of the most rigorous kind. Mr. Ballard, the editor of the paper, is a graduate chemist from Johns Hopkins University, and his wife (Dr. Edith Lober) is a graduate of Cornell and Tulane universities and one of the best known woman physicians in the South. They have acted as a medical board for the paper and all "copy" for advertising that was under contract at the time the censorship was established was carefully read, every remedy was tested, and a complete written report was made on every case. If the copy was objectionable the advertiser and his agent were notified that it was objectionable under certain rules, a set of which was enclosed with the letter. In most cases advertisers admitted their guilt by silence. Others wanted more details. Then duplicates of the medical reports were mailed. Some argued their cases and some threatened suits. When this was done the *Item* printed the entire correspondence as a feature story, with the report of its medical board. Lawyers and special pleaders for "proprietary associations" called on the paper and they were all told to use the libel court route if they felt they had been damaged. However desperate the threats were, thus far not a single suit has been filed. The *Item* threw out 119 contracts amounting to $35,000. Mr. Newmyer, the business manager, says that contracts amounting to more than $10,000 have been offered and declined and that the income from special editions, a particular form of advertising abuse in the South, would have amounted to $25,000 more, and that thousands of dollars' worth of business has been withheld by those who definitely fought the paper's policy. Mr. Newmyer believes that the total of these losses amounts to $100,000, and yet he writes to the WORLD'S WORK: "Does it pay? Does it pay to be honest? Man alive — to look all your home town squarely in the eye and know that they know you're on the level, even if they don't agree with you — to know that 60,000 faithful followers are

; with you — to know that even-
ıll publishers will be forced to follow
ɜe a leader — does it pay? And
proof that it pays. To-day every
ade advertiser, local and national,
New Orleans paper, uses the *Item*.
:ts we couldn't reach came in
ırily. Our advertising revenue was
greater and our net profits never
ıtisfactory."

January 1, 1913, the Minneapolis
l announced its refusal to accept
ıre patent medicine advertisements
might be considered at all objec-
e. The *Journal* began to publish
ges, clipping patent medicine adver-
ıts from its leading rival. This
a vigorous editorial fight between
vo papers, which had a good deal to
ı calling the attention of the public
Northwest to the movement for
dvertising. While this controversy
ogressing, the Advertising Club of
ıpolis, under the leadership of its
ıs president, Mr. Mac Martin, got
through the legislature of Minne-
ıd on March 11, 1913, it was
ɔy the governor. On the following
ery advertiser in the state received
from the Vigilance Committee of
ɔ containing a copy of the law and
for assistance in its enforcement.
ter Sunday, 1913, the club placed
age advertisement in all the papers
ıeapolis, calling the attention of the
to the law and asking coöperation
rcing it.

ING ADVERTISERS INTO HONESTY

effect of this law on the state
nediate and widespread. Milliners
their Paris labels and announced to
ɔlic that they would not again sell
ıde in the United States with any-
ut their own or the original manu-
r's label. The effect of the law
e moral sentiment that was built
porting it were so strong that the
ıpolis Club has only had four cases
to the courts. The first was dis-
after the president of the company
vith hat in hand to give absolute
ce of satisfactory future conduct.
ond was never tried, as the assignee
who was conducting the alleged fraudulent sale fled from the city; the third case was lost on a technicality but the business of the offender was immediately closed up; the fourth case, that of a horse-trader, was won and the offender fined half of the maximum penalty with a warning from the judge that a second offence would put him behind the bars.

THE MAILS THE REFUGE OF THE SHARKS

All this activity has demonstrated that most advertising is honest and dependable and that the relatively small amount of the other kind can speedily be done away with. Strangely enough, as magazines and newspapers have set up their high standards and denied their columns to the unreliable advertisers, the latter have found their only place of refuge behind the protecting postage stamp of Uncle Sam. Denied access to all reputable publications and to bill boards and street cars and practically every other form of advertising, the swindlers and fakers now carry on their business chiefly through the mails. For years the Sterling Debenture Corporation was unable to have its advertising published in any medium of standing; but all the time it carried on a far-reaching propaganda by mail and sold millions of dollars of worthless stock. At the advertising convention in Boston three years ago the advertising clubs unanimously passed resolutions calling on the Government to protect the public more rigorously by denying the use of the mails to swindlers.

But the advertising club movement is not concerning itself merely with the question of clean advertising. It has been quite as much interested in efficiency as in truth. Because of its interest in efficiency it has carried forward during the last four years, under the direction of an Educational Committee, a wide-reaching educational programme. Lecture courses and study courses are followed by a great majority of the clubs. The Educational Committee has begun the publication of books that it hopes to have accepted as the authorities in the field of business and advertising. Last year it published "Advertising as a Business Force," by Prof. Paul T. Cherington, of the School of Business Administra-

tion of Harvard University. At Toronto it announced two more books for publication this fall: "Advertising — Selling the Group," by John Lee Mahin, of Chicago; and "The New Business," by Harry Tipper, president of the Advertising Men's League of New York. Professor Cherington's book has been brought out in England, in Spain, and in Australia, and an edition is being arranged for in Germany. The profits from the sales of these books sustain the educational work among the clubs.

ADVERTISING AND THE COST OF LIVING

The Educational Committee has seen that a business which in America calls for an expenditure every year of double the cost of digging the Panama Canal must fully justify itself to the public. Naturally so vast a sum raises the suspicion that it may have some part to bear in the high cost of living. Advertisers challenge this suspicion and point to the fact that advertised articles have maintained the same price levels, despite the general tendency to higher levels, and they say that this has been possible through larger sales secured by advertising. The Educational Committee is surveying this whole subject and it announced at Toronto that during the coming year it would add to its activities the work of a committee that would seek to make all the public know how it is being served through advertising. The first movement in this work is a lecture by Mr. James Schermerhorn, publisher of the Detroit *Times*, on "Advertising — The Light that Serves and Saves." This lecture is illustrated by moving picture films and by stereopticon slides and will be given the coming year by the advertising clubs of the various cities before women's clubs, churches, societies of various sorts, and in every other place in which it can have a proper hearing.

The club movement has adopted as its emblem the word "Truth," superimposed on a map of North and South America and surrounded by the words, Associated Advertising Clubs of America. This was done through the Publicity Committee, which has carried on a broad campaign, advertising the annual conventions as great business gatherings, in the main, but also advertising the Truth emblem and emphasizing its significance.

MAKING ADVERTISING A PROFESSION

The club movement, which has so much definite work to its credit, has had the good fortune to have effective leadership, especially under its last three presidents, Messrs. Dobbs, Coleman, and Woodhead. The movement has now spread to England. A few months ago the Associated Advertising Clubs of Great Britain were formed into a national organization with 3,000 members. Plans are under way for a similar organization in Germany. In all these clubs the ethical standard that has been raised in America is maintained. Though advertising is considered as a business its practice is fast being transformed into a profession, with the code and standards and training of a profession. The Educational Committee of the clubs is interesting colleges and universities in adding courses in advertising to their schools of business administration. New York University has been the first to establish a full four-year course. Several institutions have a course of two years and the University of Wisconsin is undertaking to train better merchants and better salesmen through the University Extension work. The Small Town Advertising Club work, which is part of the educational activity of the club movement, is doing the same thing. It is seeking to make retail merchants more efficient.

The sum total of all this activity, whether ethical or educational, is aimed at making every element in advertising and in selling more effective and therefore more economical. That, after all, is the big meaning to the public. The cost which the maker of an article has to meet in reaching the ultimate consumer is the cost that has to be lowered. Every one agrees on this point. The Advertising Clubs are convinced that they are going to reduce the cost item represented by advertising, and thus become, in a very definite way, servants of the public.

'HE PAGEANT AND MASQUE OF SAINT LOUIS

MAGNIFICENT OPEN AIR SPECTACLES THAT FIRST PORTRAYED AND THEN 'MBOLICALLY INTERPRETED THE HISTORY OF ST. LOUIS BEFORE AUDIENCES OF FROM 50,000 TO 125,000 PEOPLE — AN ARTISTIC AND FINANCIAL TRIUMPH OF PAGEANTRY ON A GRAND SCALE

BY

GEORGE P. BAKER

THE last days of May, pageantry ›roved triumphantly in St. Louis what his drama of the masses may do for he masses. Within a few years there ıave been many pageants in different of the United States, but with the tion of those at Quebec and Philadelthey have been, in numbers involved, vely small. We have had few pageants ıensurate in size with the well-n performances at Warwick, York, bans, and Winchester, England. We regarded 1,500 performers and an nce of 10,000 people as pageantry in ırge. The Pageant and Masque of ,ouis used 6,000 performers before nces of from 50,000 to 125,000 people. ›usly, such numbers must have ›d special problems in text, staging, ıg, and policing. All these St. Louis 'ith success.

this vast artistic effort came from the siasm of one person, Miss Charlotte ›old, who ultimately served as execusecretary. Believing strongly that ›uis should have a pageant, undaunted ck of understanding or indifference e outset, she gradually won to her a group of representative citizens became devoted and competent ›rs on the various committees which ›ageant necessitates. To write and the Pageant and Masque, these or-›rs summoned Mr. Thomas Wood Stewho wrote and staged the Pageant; Percy MacKaye, who wrote the ue; Mr. Joseph Lindon Smith, who tage director of the Masque; and Mr. rick S. Converse, who wrote the for the Masque. With so many ıittees and so many directors and authors involved, one had a right to expect some confusion, but the opening performance went with a smoothness which testified to extraordinary coöperation on the part of all concerned.

In all pageantry the site is of first importance. In this instance it was chosen and developed with skill. Many visitors to the World's Fair in St. Louis will recall in Forest Park the semicircular slope stretching gently down from the Art Building to a crescent-shaped lagoon about fifty feet wide. On the opening night, the crowd began to gather early for the performance announced for 6:30. This was necessary, for half of the forty-five thousand seats were free to those who came first. Quite properly, only on this condition would the city permit the sale of seats in this public pleasure-ground. Clear across the front of several hundred feet stretched two rows of boxes. These were about thirty-five feet back from the lagoon. Behind these, far, far up the hill to the Museum ran the rows of seats, none higher in price than $1.50, and many of them to be had for 25 cents. The policing had been so admirably arranged that the foot passengers scarcely once crossed the path of the automobiles, and night after night these vast crowds dispersed with far less crowding and discomfort than one constantly experiences in our theatres. The ushering was in the hands of the Boy Scouts, who managed the overconfident, the misinformed, and any excited late-comers with a firmness, sureness, and tact that must have converted any doubting Thomas as to the Boy Scout movement. Taking one's seat, one faced a stage about three hundred feet long by

about a hundred deep, built out a little over the lagoon on the farther side. On three sides, walls of wood, perhaps sixty feet high, shut in the stage. These were masked with canvas, painted to represent the crumbling walls of Aztec temples. At centre stage, and elsewhere at right and back of stage, were huge mounds with steps leading to their tops. Across the centre ran similar maskings to shut off the space where chorus and orchestra were concealed, the former of about three hundred voices, the latter of a hundred instruments. From the centre and around the ends of this masking were entrances, as well as at upper stage left and at lower stage right. Each wall ended in a tower at the front of the stage. From these the spotlights were directed upon the stage, and from them the directors of the performances, with their aids, guided the action. Scattered about the stage stood curiously-shaped flat scenes painted to suggest shrubbery and trees. In the Pageant, from time to time, these were opened out into the huts of the early settlers, stockades, defences, etc. Huge spotlights on the Museum's roof also played upon the stage.

A TRIUMPH OVER DOUBT

On the opening night, as the audience slowly gathered, it was clear that the public was curious and interested, but not at all sure just what kind of entertainment lay ahead. The free seats were promptly filled, and steadily the rows of standees deepened. But the public in the seats which had been on sale came exasperatingly late. Indeed, it kept on coming till the Pageant was nearly two thirds over. And with that cheerful disregard of the rights of others, to be observed everywhere in late comers to our theatres, it chatted and talked loudly as it tramped down the wooden aisles between the spectators and the stage. The prevailing atmosphere was that of a crowd out for an evening of social pleasure of which the dramatic entertainment was only a part, to be praised if praiseworthy, but which could not spoil the evening if it did not amount to much. Unfortunately, the early hour for beginning made it inevitable that the break between the Pageant and the Masque should be the supper hour. Obviously, this public had not as yet acquired the German habit of combining theatre and supper without detriment to either. Even their interest in the Pageant could not make them quiet down rapidly as the Masque opened, and much of the first part of the latter was consequently inaudible. However, before the evening was over — and at this first performance the Pageant and Masque with their entr'acte took from 6:30 to 11 o'clock — the significant history, the beauty revealed to eye and ear, had the desired effect. Most of those who had to go early went quietly without talk. Many of them tip-toed their way, looking back as they went. There could be absolutely no doubt, before the evening was over, that beauty of thought, stirring historical event, and interpretative imagination had won out against misunderstanding, indifference, and idle curiosity. There was something very inspiring in that.

A GREAT POPULAR SUCCESS

From that first night, the Pageant was a popular success and an artistic education. On the afternoon of the third day, as I rode through Forest Park at 4:30 o'clock, a steady stream of foot passengers, nearly a mile long, was passing in from one side for the performance to begin at 6:30 o'clock. A similar crowd was probably coming from the opposite direction. Thousands of automobiles came in just before the performance. The numbers mounted steadily from about fifty thousand on the first night to one hundred and twenty-five thousand on the third night and later.

THE PAGEANT

Promptly at half-past six on the first night an Indian High Priest with two acolytes came up over the great mound near the centre of the stage, and the Pageant began — in full daylight. In brief episodes, now of verse, now of prose, now of pantomime, the older Indian civilization gave way to the newer; De Soto and his followers came and passed on their way exploring; Marquette and Joliet paddled in canoes round the curve of the lagoon at the left. After they had passed, La Salle

and his mixed party of French and Indians returned, this time in canoes. Quickly the voyagers rebelled against going into the unknown, and as quickly La Salle quelled their rebellion. As La Salle cried, "Forward," the voyagers, taking up their packs again, returned to their canoes and paddled slowly out of sight at the right of the stage. Then an Indian prophet chronicled the passing of the Indian before the coming of the white man, an interlude before the Second Movement. The latter busied itself with brief scenes, closely following history apparently, concerning the founding of St. Louis, its control successively by French and Spanish, and the ultimate taking over of the post by the Americans. The third movement concerned itself, after some cuts, with the visit of General Lafayette, the return of the volunteers from the Mexican War of 1845, the prominence of the Germans in the early life of St. Louis, and finally a series of scenes connected with the election of Lincoln, the tidings from Fort Sumter, and the news of peace. As the stage, filled with hundreds of people, was given over to cries of delight and merrymaking, the music ceased, the lights disappeared — and the Pageant was over.

A TRIUMPH OVER DIFFICULTIES

The Pageant had many difficulties to overcome. It must be brief, since it was not to occupy the entire evening. If it was to review the whole history of St. Louis it must, therefore, outline rather than present dramatically certain famous historical scenes. It must be acted upon a stage of heroic proportions when the history of St. Louis is filled rather with opportunities for delightful characterization than with heroic circumstance. Again and again a spectator longed to be nearer the Pageant that its details of action and characterizing lines might have their full value. For its best effect, it should have been on a smaller stage in closer relation to the public. That it held its public night after night and won much praise shows how well Mr. Stevens met his task.

The Pageant was realism in episodes. With the Masque came symbolism, unified and clarified by the figure of Saint Louis passing through it. In sweep of imagination, in fitness for required conditions, I doubt if Mr. MacKaye has done anything better — particularly in Part I. That was largely and richly conceived, broadly and dramatically executed. It contained many a moment memorably thrilling or memorably artistic. To quote from its stage directions:

"Out of complete darkness mysterious music rises, prelusive to the appearance of a visionary scene on the plaza. There, before the central mound (as the music continues, descriptive) Spirits of the Mound-Builders perform the ceremonies of a prehistoric ritual. Dimly seen in the darkness of the vast stage is an ancient temple of the Maya civilization — a concrete expression of the religion of the great race of red men of Yucatan and Central America. The temple is to some extent a replica of the famous Chichen-Itza, one of the greatest masterpieces of architecture of this wonderful period of art in the Western world.

"Into the scene comes a great procession, suggesting the symbolism and imagery of the race.

"Heroes and gods, priests and priestesses, dancers and musicians walk solemnly across the great plaza before the temple — a brilliant spectacle, exotic and unique, flooded in the warm glow of sunset light.

"While the priests perform a ceremony at the altar in front of the great mound, above which towers the shrine of the temple, groups of men, boys, and girls give expression in dance to the religious inspiration and embodiment of strength and grace; and when the climax of the dance is reached, the vision fades — the lights grow dim, night steals on, and only the glow of the altar fire remains."

WONDERFUL STAGE EFFECTS

I had found the journey from New England to St. Louis in late May hot and grimy, but such beauty as this opening scene revealed when staged by Mr. Joseph Lindon Smith offset amply any discomfort. I cannot too highly praise Mr. Smith's staging throughout the Masque. At will, his lighting had brilliance, mystery, suggestion. He is a master in handling

masses of soft coloring and in subordinating detail to larger effects. His balance in handling his stage is perfect. Never did he crowd one part of it to leave great spaces empty. Never did he distract the attention by groups of equal interest in different parts of the stage. However scattered his figures might seem to be, there was focus of effect.

From that first beautiful scene of the Masque as Mr. Smith treated it, I got something of the delight which only parts of "Sumurun" had previously given me. Slowly and with exquisite rhythm, figures, walking, swaying, dancing, filled the great stage, coming one hardly knew from where. And as it filled from the right in Indian file, with right arm extended before them and right knee raised high like figures in Assyrian bas-reliefs, came the Boy Scouts, clad only in breechclouts, their bodies stained a yellow brown. On they came, slowly, rhythmically, endlessly. The delight to any pageant master in seeing numbers represented, not by tens or scores, but by hundreds!

THE POETRY OF THE MASQUE

"Now in total darkness the mood of the music, changing, sweeps to a wild burst of brass and wood-winds, mingled with rolling thunder. Simultaneously, as from mid-air, appear on the tops of the towers two vast male figures, vaguely illumined — Hilóha and Noohái, the Elements of Heat and Cold." And splendid figures they were in their sudden revelation. As the stage grew lighter, "a colossal masked form, garbed like an Aztec Indian priest, appeared midway up the great mound at centre stage — Cahókia."

This huge figure of Cahókia was so arranged that the person speaking from behind it could move the head and arms in life-like fashion. We watched Cahókia, the great god of the ancient Aztec religion, answer, as the voices of the Elements called about him, or as the Wild Nature Forces, dim crouching forms with beast-like heads and bodies, fawned and fretted. And then, after one of Cahókia's speeches, high up over all, outlined by electric lights, appeared Wásapédan, the Great Bear. Then, too, the stars burst into their chorus, poetically and musically one of the b things in the Masque:

> Wásapédan, the world is dim,
> The way to beauty is far — is far,
> And man, whose soul is a climbing star,
> Man, our brother — O, comfort him.

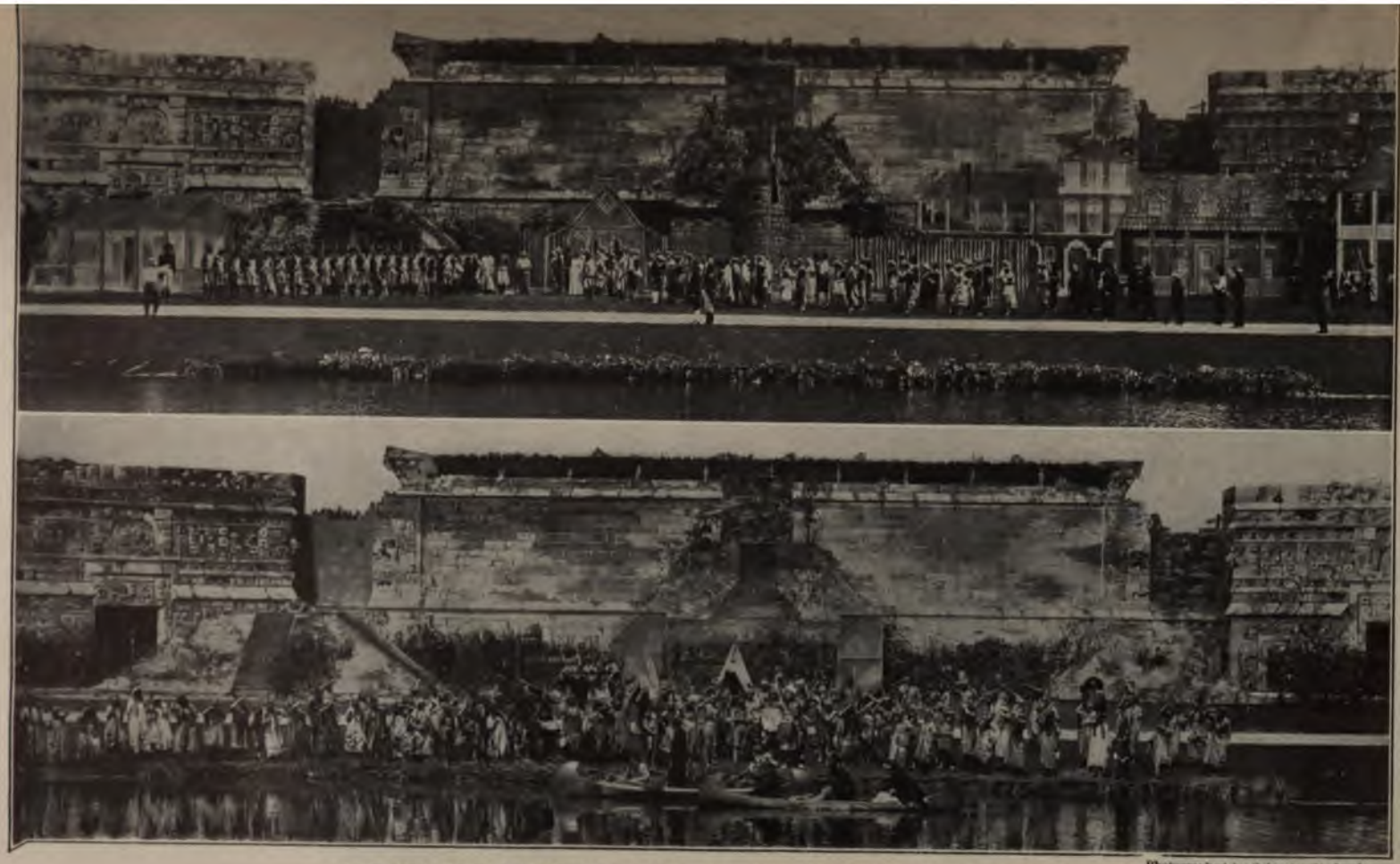
Shortly after came another memoral moment, when Wásapédan from his lo outlook announced to Cahókia that t Father of Waters "brings now the wh child." Slowly, majestically, up the goon at left of stage came a great can Before it the water in the half-light seem to break into foam, but as it drew nea one saw that the foam was really the wh arms and legs of youthful swimmers dra ing the boat after them. High in t prow stood the figure of Mississippi. the stern, aloft on a litter of rushes, stoo little golden-haired child, beside him great sword shining with light. Swingi gliding, accompanied by the splash of t swimmers and the chanting of those with and without the boat, the canoe came and paused at the edge of the stage.

There was another fine moment wh the tiny figure of the child, after slow climbing the many steps to Cahókia's fe unaffrighted, nestled between his va knees. Purity, fragile but unafraid, re ing against ignorance and consequent e of vast proportions — that was the sy bolism we saw. When the Wild Nat Forces had surged in vain around the lit figure, Wásapédan was heard announci the coming of a new group. Then, wi rich allegory of costume and groupi figures came up the lagoon bringing t Christian religion. Can any one fail see that as all the figures on the stage a those newly come burst into the "V Creator" there was a splendid clima As the stage emptied and Cahókia, Wás pédan, and Saint Louis were left alone, o the solemnity of their parting messa and the sweet high treble of the chil

> I hark, I hark — and will remember

prevented an anti-climax as the old reli ions and beliefs faded into darkness.

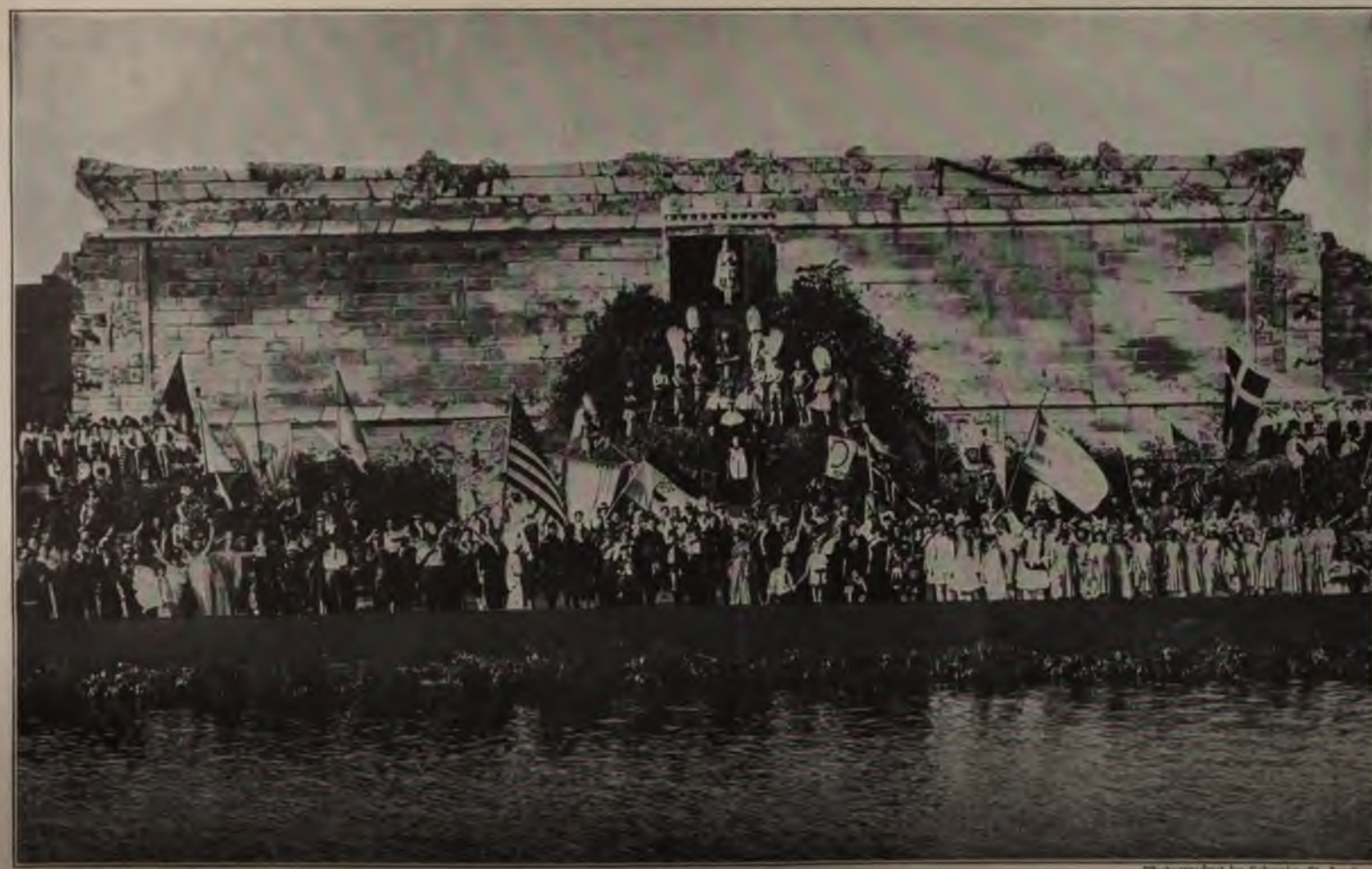
Of the beauty of the Interlude one c get little idea in reading the text, for he the imaginations of Mr. MacKaye a



Photographed by Schweig, St. Louis

SCENES FROM THE PAGEANT OF THE HISTORY OF ST. LOUIS

UPPER PICTURE: THE ARRIVAL OF CAPTAIN STODDARD AND MERIWETHER LEWIS ON "THE DAY OF THREE FLAGS." LOWER PICTURE: THE ARRIVAL OF MARQUETTE AND JOLIET AT THE SITE OF ST. LOUIS



Photographed by Schweig, St. Louis

PART OF THE CAST OF "THE MASQUE OF SAINT LOUIS"

WHICH WAS ENACTED BY SEVERAL THOUSAND CITIZENS ON THREE EVENINGS IN LAST MAY AND JUNE BEFORE IMMENSE AUDIENCES THAT CROWDED A HUGE OPEN AIR THEATRE BESIDE A LAGOON IN THE GROUNDS OF THE WORLD'S FAIR OF TEN YEARS AGO

Photographed by Schweig, St. Louis

"GOLD" DEPOSED BY "LOVE" AND "IMAGINATION"

A SCENE FROM MR. PERCY MACKAYE'S "MASQUE OF SAINT LOUIS"

THE HISTORY OF ST. LOUIS

UPPER PICTURE: CAPTAIN DE VOLSAY RAISING THE FRENCH FLAG. LOWER PICTURE: CAPTAIN STODDARD AND GOVERNOR DELASSUS SIGNING THE DOCUMENTS THAT TRANSFERRED ST. LOUIS TO THE UNITED STATES

Photographs by Schweig, St. Louis

VIVID BY PAGEANTRY

ER PICTURE: GENERAL HARRISON LEAVING ST. LOUIS IN A WELLS-FARGO COACH. PICTURE: THE PEOPLE OF ST. LOUIS READING THE PROCLAMATION THAT "THE COUNTRY D TO AMERICA"

SENATOR THOMAS H. BENTON ADDRESSING COLONEL DONIPHAN AND BAT-

Mr. Smith worked in perfect collaboration. High up on the great back wall, in single file, like silhouettes, passed the figures of the first part of the Pageant, "a frieze symbolic of the passing years, the falling, faltering, onward-groping souls of human generations as they vaguely aspire from the dusk." As one great red figure paused at centre high up on this wall, and the other figures passed endlessly on and on, I recalled, and with something of the same thrill, that magnificent sweep across the stage in "Sumurun" of brilliantly colored figures, backed by the grayish blackness of the mosque at night.

Part II of the Masque opened with a fine Chorus of Pioneers. The allegory of this part busies itself with the struggle of Gold and his attendant Earth Spirits to conquer the soul of man and overcome Saint Louis. Mr. MacKaye develops his allegory, till the child, Love, breaks the force of Gold and restores his lost sword to Saint Louis. As Saint Louis addresses the representatives of the great cities who have come to greet him, one hears again the Chorus of the Stars:

> Out of the formless void
> Beauty and order are born:
> One for the all, all in one,
> We wheel in the joy of our dance.
>
> Brother with brother
> Sharing our light,
> Build we new worlds
> With ancient fire!

This is not the place for any detailed discussion of the technical problems raised by the St. Louis Pageant and Masque. It was perfectly clear that pageantry is more beautiful by night than by day. Not only did the Masque gain by the artificial lighting, but the Second Part of the Pageant itself, given by artificial light, was more beautiful to the eye than the First Part, acted in daylight. It is clear, too, that a city need not be daunted by the great expense involved in such a pageant. This one was expected to cost $125,000. A guarantee fund of only

Photographed by Schwelg, St. Louis

" UPON THEIR RETURN FROM THEIR CAMPAIGN IN MEXICO

,000 was raised, but the immense e will probably make up the dif- etween this and the required

other hand it is a question oth Pageant and Masque might gained had they been given te nights. With the entre-act, de a programme that lasted n three hours, and demanded a of attention almost exhausting ng a space. Two hours is, ap- about all a public can stand in en air productions. For the master and the dramatist, both and Pageant may raise many g questions as to the proper use r less intimate pantomime in such ns, and as to the amount the voice should be depended upon Two or three members of the trong voices of remarkable carry- r. A few had been trained to ghter voices with clearness, but uld be heard only at times. Emotional shading became impossible for nearly all concerned. Probably, from all over the country, persons with powerful voices capable of emotional shading even under conditions like these could be gathered, but it is one of the vital principles of pageantry to use to the utmost people of the community. How are these problems to be met in the future?

Yet, whatever questions of this kind may be raised, they are of purely secondary importance. The main point is that St. Louis has shown how a vast entertainment of the people by the people may be successfully given — successful financially, successful artistically. Creating in her people from many lands a common interest in her history, she has created in them, too, hunger for entertainment of similar high artistic quality. She has broken the way for her sister cities. All honor to those hard working committee members who, standing behind authors and directors, have helped them to give St. Louis this new claim on our attention and gratitude!

LEADERS OF THE NEW EAST

WHO WELCOMED THE YOUNG MEN'S CHRISTIAN ASSOCIATION TO CHINA. UPPER PICTURE: THE PROVINCIAL PARLIAMENT OF FUKIEN. LOWER PICTURE: CHINESE STUDENTS IN FOOCHOW

ASIA AWAKE AND ARISING

A MORAL REVOLUTION SWEEPING OVER CHINA JUST AS THE BREAKDOWN OF OLD FAITHS WAS THREATENING THE STABILITY OF THE PEOPLE'S CHARACTER — THE ASTONISHING GROWTH OF NATIONAL CONSCIOUSNESS AMONG RACES THAT UNTIL NOW HAD NO WORD TO EXPRESS THE IDEA OF PATRIOTISM — AN INTELLECTUAL RENAISSANCE AND AN ECONOMIC REVOLUTION

BY

SHERWOOD EDDY

(SECRETARY FOR ASIA OF THE INTERNATIONAL COMMITTEE OF THE YOUNG MEN'S CHRISTIAN ASSOCIATION)

DURING the last eighteen years, in my work for the Young Men's Christian Association among the students and official classes, my duties have taken me throughout Asia and compel me to visit yearly in Japan, China, and India. My last journey was in 1913, when, with Dr. John R. Mott, I crossed the continent of Asia. Upon our arrival in China, the first banquet given us in Shanghai showed the changes which had so recently taken place in that country. About two hundred of the leaders of this young republic, arrayed in evening dress, gathered in the Palace Hotel. In the chair was Mr. K. S. Wong, business manager of China's great iron and steel works, and perhaps the future Carnegie of China. In these works, that employ more than 4,000 workmen, we afterward saw skilled laborers turning out the finest steel rails with which to build

MR. SHERWOOD EDDY

WHO HAS INTRODUCED WESTERN EDUCATION INTO SOME OF THE REMOTEST PARTS OF CHINA

THE KAIPING MINES IN NORTHERN CHINA
THAT YIELD ABOUT 1½ MILLION TONS OF SOFT BITUMINOUS COAL YEARLY

the new railroads of China, that will stretch from Shanghai to Burma and from Canton in the south to Siberia in the north. On the left sat Dr. Wu Ting-fang, former minister in Washington, who represented the revolutionary forces in the negotiations with the Manchus in forming the new Republic of China. Next to him sat the manager of the Nanking Railroad, a graduate of Yale. All about us were the leaders of the new industries of China and the signs of an industrial awakening that is affecting almost all the countries of the Orient.

As I glanced over the leaders of the Young China Party assembled at this banquet in Shanghai to which I have referred, I saw evidence also of the great political awakening that is affecting China and the entire East. On either side of the room were draped the flags of America and China, the two sister republics of the Pacific. It was evident as I traveled throughout the new republic that America is everywhere regarded as China's best friend. This will be a most valuable asset to us in all

HANKOW, A CENTRE OF RAILROADS AND FACTORIES

our commercial and political relations with China in the future. In 1861 it was America's first representative, Anson Burlingame, who resisted the "spoils system." In 1899 John Hay fought for the "open door" against the "spheres of influence" of other Powers. In 1901 America resisted the partition of China after the Boxer Uprising and protested against the unjust indemnities levied by some of the other nations. Under President Roosevelt, America helped to confine the war between Russia and Japan to Manchuria, and to restore peace. It was America that returned much of the Boxer Indemnity money to educate Chinese students. But above all, America of all the great nations does not possess any of China's territory. It is to America, the peaceful trading nation of the Pacific, the model republic, from which China has patterned her own government, that China looks for her best friend.

MODERN INDUSTRIAL PLANTS IN CANTON
THAT SUGGEST THE NEW ERA OF MANUFACTURES THAT IS OPENING IN CHINA

Not China only, but the entire East has been quickened by the new political movement. There has been a develop-

THE GREAT MODERN IRON WORKS AT HANYANG

ment of nationality, patriotism, constitutional government, and military power far exceeding the same development in Europe four centuries ago, both in its rapidity and extent.

Japan chiefly led the way in the opening of the Far East. Its victory over Russia in 1905 was really a victory for the entire Eastern world. Not merely to her own advantage did Japan thus gain recognized equality among the great Powers of the West. Within a month of the signing of the Treaty of Portsmouth one stroke of the vermilion pencil of the Chinese Emperor had abolished the obsolete system of the ancient régime, substituting the educational principles of the new era. The next year the Shah of Persia was compelled to grant a constitution to his people, and two years later the Young Turk Party brought on the revolution in Turkey. The news of Japan's victory flashed like an electric spark across Asia and sent a thrill of hope through the whole Eastern hemisphere.

An intense development of the spirit of nationalism and patriotism has swept through almost all the great peoples of Asia. This spirit has come to the East from the West. Not one of the great Oriental nations held this concept of patriotism, nor was there any word in most of the Eastern languages to express it, until these ideas came with the great principles of Western civilization.

To-day this burning patriotism is sweeping through the students and the younger generation of China and extending rapidly even among the masses. I heard in China of many a student who had cut off a finger that he might, in his own blood, sign a petition to the throne for liberty. It was a strange sight to see student audiences with their cues gone and with them all the conservatism of the last four thousand years suddenly cast away. Whole audiences rose with intense feeling to sing their new national anthem to the same tune as that of several of the great nations of the West. The widespread demand for a republic and the recent change of government were striking evidences of the new

"THE TEMPLE OF FIVE HUNDRED GODS"

ALL OVER CHINA TEMPLES LIKE THIS ARE BEING CONFISCATED FOR USE AS SCHOOLS, AND IN ONE CITY THE IDOLS WERE GROUND TO POWDER TO MAKE BRICKS WITH WHICH TO REPAIR A SCHOOL IN WHICH WESTERN EDUCATION IS GIVEN TO THE PEOPLE

nationalism and patriotism which vaded the Chinese people, and so is the demand for it to-day that, local disturbances, democratic and an government can probably never nanently overthrown in China.

ite the serious problems that con- China to-day, I am convinced e Republic of China has come to all before it. This great people showed its strength of character when 40,000 of them laid down their lives rather than renounce their faith in the Boxer Uprising. As a race, the Chinese are naturally democratic, being self-governing in the family, the clan, the trade-guild, the village, and the province. The Chinese people will never again long permit the

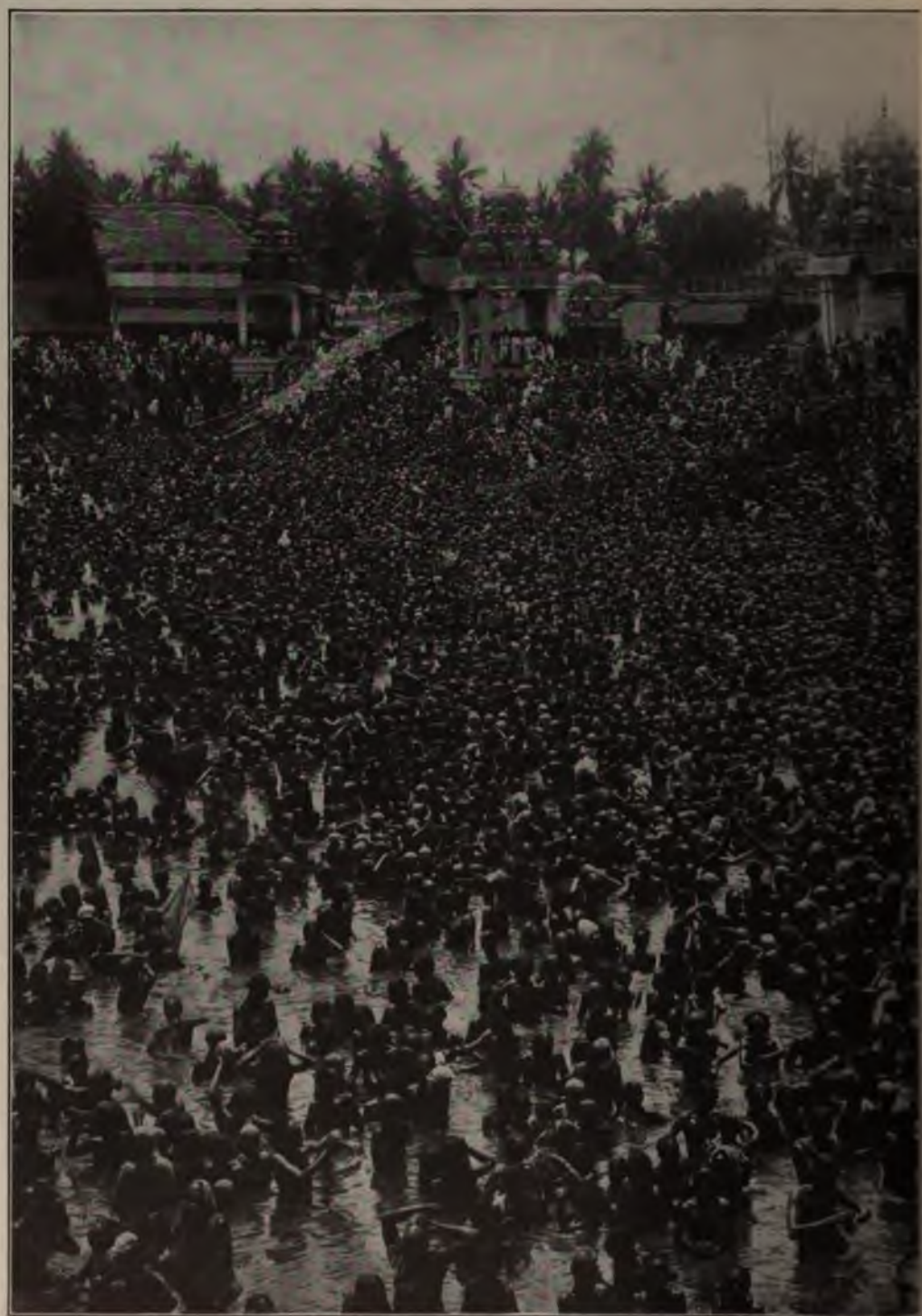
A WOOLEN MILL IN SHANGHAI

IOUSAND WOMEN AND GIRLS ARE EMPLOYED IN THIS GREAT FACTORY, WHICH IS ONE OF THE MANY EVIDENCES OF THE INDUSTRIAL AWAKENING OF CHINA

China's sudden revolution was pre- by a long evolution of preparation. rength of character of the Chinese also makes for permanence. Every that began with China has fallen. h and Babylon, Assyria and Egypt, and Rome have passed away, but after four thousand years of con- history, seems to have renewed th. It is not decadent, like some races of Southern Europe, but and virile, with its greater future rule of an autocracy superimposed upon their broad democracy.

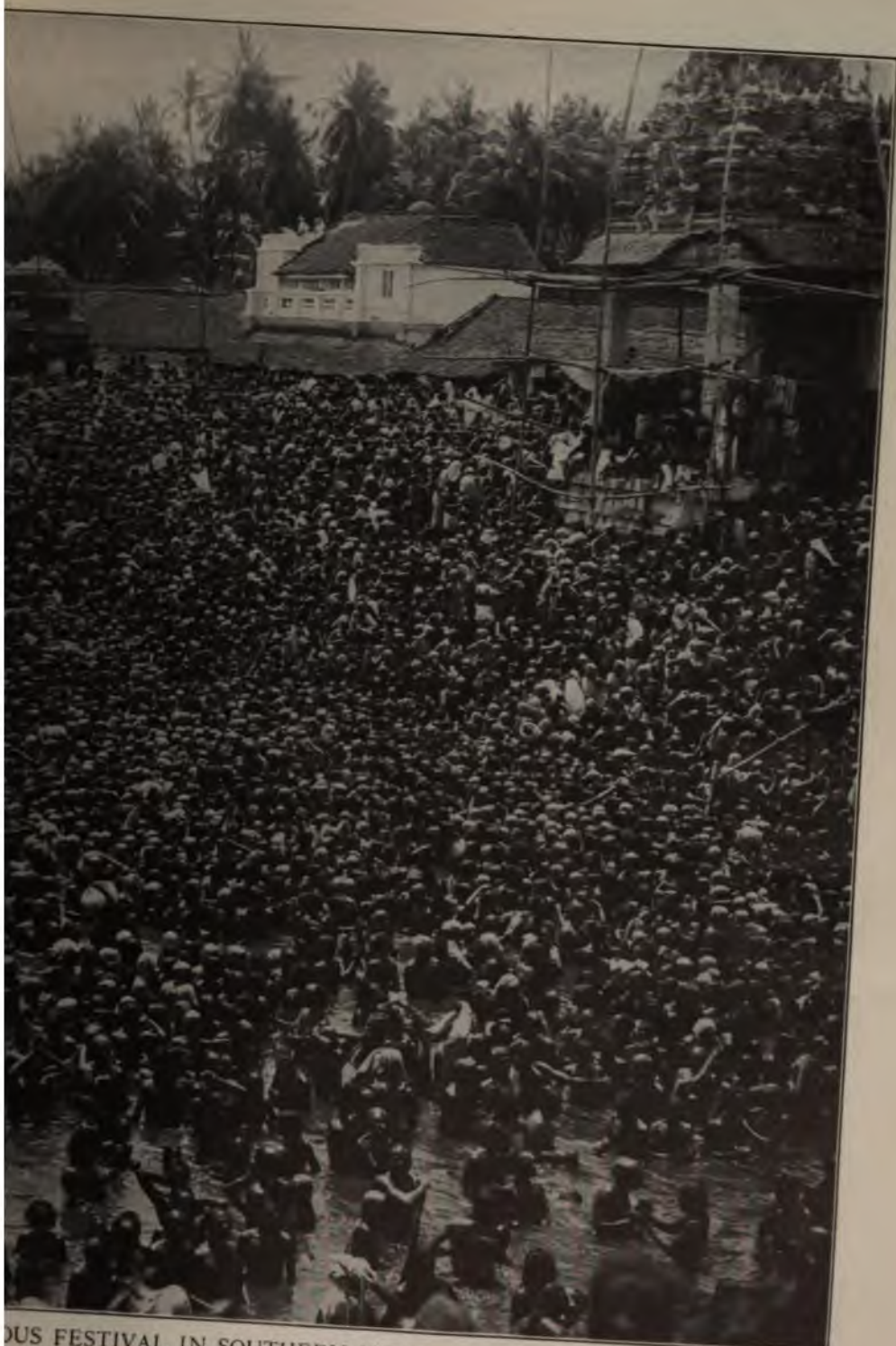
The same burning patriotism has spread among the students of India. Indeed, every student audience from Tokyo to Calcutta, from Shanghai to Constantinople, from Seoul to Bombay, showed the same deep national feeling, the same response to the national note.

The students of India to-day are not reading the Vedas or the musings of the ancient Rishis or speculative philosophy,



TEN THOUSAND HINDU WORSHIPPERS AT A

IN INDIA, AS THROUGHOUT ALL ASIA, THE OLD FAITHS ARE BEING AFFECTED BY CHRISTIANITY,
OF FARMING AND TO



)US FESTIVAL IN SOUTHERN INDIA

PRIMITIVE AGRICULTURE AND HANDICRAFTS ARE YIELDING TO MODERN METHODS
NDUSTRIALISM

AN OLD HINDU TEMPLE IN INDIA

THE TOWERS ARE HUGE, INTRICATELY CARVED GATEWAYS TO THE INNER SHRINE

but they are reading Mill and Mazzini on liberty, they are interested in the American and French revolutions and in England's struggle for liberty. This developing of national consciousness, which is slowly but surely penetrating the masses, will probably in time bring India to the position of a great self-governing member of the British Empire, like Canada.

The intellectual awakening throughout the East is even more startling. In China temples in many of the cities have been

A Y. M. C. A. BUILDING IN MADRAS

A CENTRE OF MODERN EDUCATIONAL, PHYSICAL, AND SPIRITUAL ADVANCE IN THE HEART OF SOUTHERN ASIA

confiscated to accommodate the colleges or schools which are being founded more rapidly than buildings can be built for them. The ancient examination halls of the classic system are being torn down to build the new universities and parliament buildings. The number of modern government students in Peking rose in ten years from three hundred to seventeen thousand, and the pupils in the surrounding province increased from two thousand to two hundred thousand. During a visit to a dozen of the cities in China I found from four thousand to twelve thousand students in each. The splendid buildings of the great normal schools rise in many cities, some having a thousand teachers in training, for China's new system when completed will call for nearly a million teachers. There is a thirst for modern education greater even than that which was formerly manifested for the old learning, when men of seventy or eighty years of age were seen still trying to pass the classic examinations. Even women's education is being rapidly advanced in China.

The printing press is extending this Oriental renaissance much more rapidly than it did the Occidental renaissance. Although the Chinese invented movable type five centuries before Gutenberg at Mainz, it was Robert Morrison, the missionary, who brought the first modern press to China. China's one permitted newspaper, the *Imperial Gazette*, for the government officers, is now multiplied two hundredfold. William Carey, "the cobbler missionary," introduced the printing press and newspaper into India, where to-day 3,500 newspapers and periodicals are issued from 2,700 presses.

A MORAL REVOLUTION, TOO

But the awakening of Asia has not been confined to the commercial, the political, and the intellectual life of the people. A moral and religious awakening is taking place as well. Nor is it the masses alone that are being affected by the present change. Even more striking is the new attitude of openness on the part of the officers and students toward the benefits of Christian civilization. The Young Men's Christian Association, among other agencies, is especially seeking to coöperate with the official and student classes in their search for a more enduring foundation for the new civilization. In the last inland province of China the governor recently offered a splendid site for a new Y. M. C. A. building to help the students of his province. Members of parliament and Confucian business men are contributing $50,000 toward the erection of this new building.

Why do they do this? It is hard for us to realize how much such an institution means to such a province in China. Imagine a crowded city of a million people, with narrow and insanitary streets, without a park, a playground, a library, a hospital, or a clean place of resort, but infested with opium dens and centres of gambling and vice. Then place in the heart of that city a great Y. M. C. A. building, with all its humanitarian and philanthropic activities; it becomes to them the very epitome of Western civilization at its best. Here are the indoor gymnastics, training Chinese athletic directors for an empire; its out-door atnletics, with football, baseball, and the track, its Olympic games for the Far East, with China, Japan, and the Philippines competing; its fight for sanitation; the Anti-Tuberculosis League, and the Playground Movement — all these are a physical gospel for a nation that deeply needs it. Its educational classes are crowded both in the day and night schools with students from the leading families, eagerly seeking a Western education. Its science department and lectureships are reaching the officers and government students of every provincial capital. Its social activities are uniting all classes in a broadening circle of brotherhood. Its moral uplift comes to China just at the time of the rapid and ominous breakdown of the old religions in their patent inability to satisfy the individual or to supply a sufficient basis for moral and religious life. Its trade-schools are introducing new machinery, Western inventions, modern commercial methods, and are aiding the economic uplift of provinces that are rich in resources but that are suffering from deep poverty because of the ignorance

and superstition that were created and permitted by the old régime.

AMERICAN IDEALS, AMERICAN GOODS

For every dollar thus invested in philanthropy or missions in China a hundred dollars will come back in trade to this country. Although this is not the motive of our work, the fact is nevertheless indisputable. Twelve hundred Chinese students who are studying to-day in America are going back as the future governors, officers, engineers, and leaders of every department of that great Republic. Where will these men procure their machinery and their supplies? In answer, let me record that I traveled over a railroad in the East, where I was drawn by Philadelphia locomotives, in cars made in Wilmington, Del., over Pittsburg rails, nailed with New York spikes to Oregon ties. In the dining car I ate Chicago beef and Pittsburg pickles; I saw many houses of the better class that were lighted by American oil, or equipped with American sewing machines. The broad fields of Manchuria are being reaped by American harvesters, and the opportunities for big business in the East are enormous.

The breakdown of the old religions, and their inability to supply a sufficient basis for morality, are leading, for a time, especially in Japan and China, to secularization and materialism. The danger is that this breakdown of the old religions may be so rapid that Christianity will not have time to take the place of the old, and to give a new and surer foundation for the life of the people.

A NEW WELCOME TO CHRISTIANITY

But with this tendency toward secularization there is a new religious attitude observable among the students. During the recent tour of Dr. John R. Mott and myself, this new attitude toward religion was unmistakably evident in the hearing that was given to the Christian message. Student audiences averaged about eight hundred a night in Japan, one thousand a night during the two months spent in India, and more than two thousand a night in China, where the interest became so intense that in the last two cities we visited — Mukden in the North and Foochow in the South — the audience rose to five thousand a day. More than fifty thousand different men in China, chiefly government students, attended these meetings. The meetings often lasted from two to three hours and in many cases people had to be turned away for lack of standing room in the largest halls or theatres that could be obtained.

Perhaps a concrete instance of the change which has taken place in a single typical city will serve to show the significance of the present religious awakening. Picture yourself entering an old Chinese city, the city of Foochow. Here we were heard by five thousand people a day, admitted by ticket only, and the total attendance during the six days rose to more than thirty thousand. Professor Robertson, the Y. M. C. A. expert in science, worked with me throughout the week. The leaders of the native Chamber of Commerce attended one lecture and a banquet. The members of seventy-two new reform societies of the city, which have sprung into being with the new spirit for reformation, attended one of the meetings. The Provincial Parliament itself adjourned and invited Mr. Robertson and myself to address them. It was an imposing body of men, and I have seldom spoken to a more enthusiastic audience anywhere.

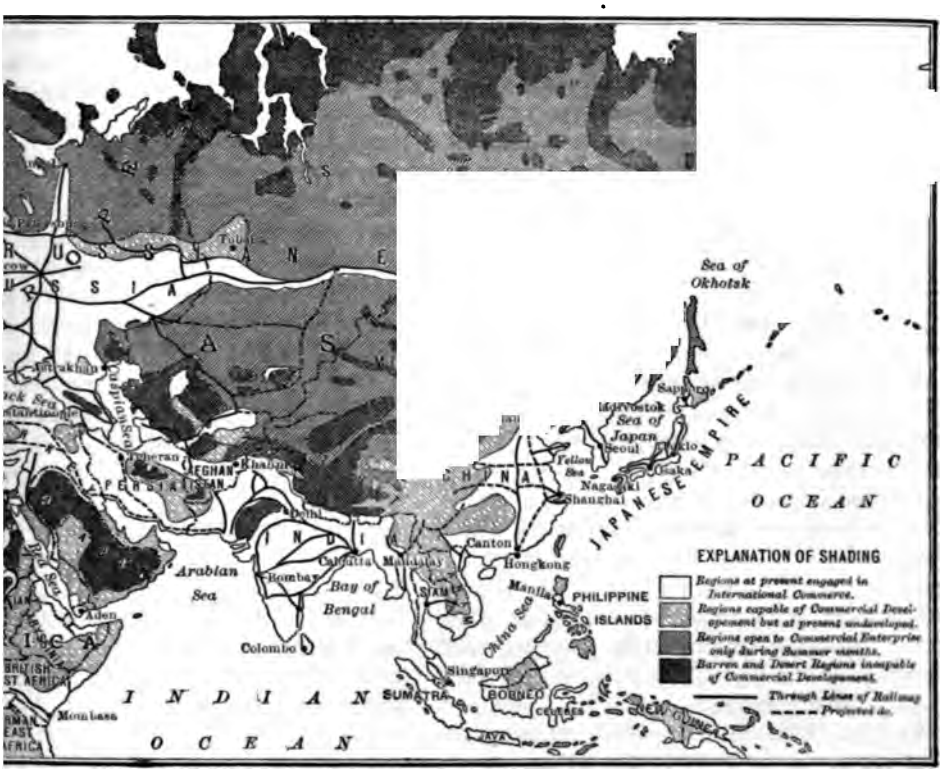
The Confucian presidents of thirteen governmental colleges and the commissioner of education in Foochow, who had officially invited us to visit the city, closed their colleges during the afternoons, that the students might attend our meetings, postponed the governmental examinations for a week, and invited Professor Robertson and myself to discuss plans for helping the students in their moral habits.

TAXICABS IN PEKING

In Peking under the old era, according to Sir Robert Hart, men were sometimes drowned during the rainy season in the deep pools of mud and water in the main streets of the city. Now we were speeding from college to college in a taxicab, in order to keep our lecturing engagements in the governmental colleges. Though we

slow up occasionally for a camel-plodding donkey-cart, as reminders : old era was still obstructing the : of the new, it was nevertheless that the new had the right of d had come to stay.

Government threw open to us for : time all the colleges of the city, nged our meetings for us. Taking



"CIVILIZATION FOLLOWS THE RAILROAD"

UTPOSTS OF MODERN COMMERCE PUSHING INLAND IN ASIA AND OPENING THE WAY TO THE RAPID N OF THE WESTERN EDUCATIONAL AND POLITICAL IDEALS THAT HAVE ALREADY SET CHINA, IN AR, ASTIR WITH NEW LIFE

etings a day we were able to visit perial University, the great Law with its four hundred enthusiastic s, and some important colleges efore opened to Christians. The Hwa College, built by America's l indemnity money, stands in the grounds that were reeking with the of the Christians in the Boxer g. To-day, under a Chinese n principal and fifteen American n professors, this college is training government students who are to l America and the West, and who will be the leading officers in the new China. The students, drawn from the eighteen provinces, are a strong body of men. Their studies are conducted in English, and, indeed, they could not understand each other in any other spoken language, as their provincial dialects are often unintelligible to one another. In 1910, before the revolution, China had organized 42,444 schools in the provinces, enrolling 1,284,965 students and pupils, but it will take some time to reorganize their educational department and adequately to finance it after the disorder of public affairs caused by the revolution.

In almost every province the officers are showing extraordinary favor to the work of the Young Men's Christian Association and to the representatives of Christian civilization. President Yuan Shih-kai himself has been generously supporting one of the secretaries of this movement. On two succeeding days l

interviewed the two generals who had commanded the opposing Northern and Southern armies in the recent revolution. Both are now governors, and both spoke enthusiastically of the Christian work for young men going on in their cities. Each of them asked that it should be extended to help the young men of the province. General Li Yuan-hung, Vice-President of the Republic, who commanded the Southern army, was particularly cordial. He gave us a European luncheon, and discussed with us the moral conditions of the young men of his province. Both these governors are liberal supporters of the work.

POWDERED IDOLS FOR BRICK

The two governors in the extreme western provinces on the borders of Burma and Tibet have shown the same remarkable spirit of cordial coöperation. In one of these provinces, which seemed the last stronghold to yield to foreign effort, the new era was introduced by two Chinese students who had just returned from Japan. Upon their return they told the governor that a political revolution was not enough. It was necessary, they said, to change the hearts of the people. They urged him to lend his assistance in founding a Young Men's Christian Association. The governor granted them a large Buddhist temple for the use of the new Association. The students ground the idols to powder, and used them to make bricks for repairing the building. The missionaries were called in to address the crowds that daily came to listen to the Christian message. It was, perhaps, the hardest city and province to influence in the whole of China, and yet in a day all was changed. Favorable edicts were issued throughout the city and province concerning the work. Non-Christian Confucian leaders began to demand the formation of Christian Associations in other cities of the province, and the work is still spreading.

Having observed the changed attitude of the officers and leaders of China, let me describe the transformation in individual character wrought by Christianity:

There is C. T. Wang, of Yale, who has had a brilliant career in the young Republic. He graduated from Yale with high honors, and as secretary of the Chinese Student Movement in America was the recognized leader of the hundreds of Chinese students in this country. Upon his return to China he again entered the service of the Young Men's Christian Association as a national secretary. Then came the revolution. Without risking his life his own position would have been assured. He had only to wait till the revolution blew over and he could have received a high office from either party that was successful, but he said: "I must go to the front. This is the hour of my country's need. The revolution may fail, or it may succeed. If it fails I could never forget that in the hour of the nation's need, at the crisis of her fate, I did not put my life upon the altar. Should it succeed I would then have waited until there was no longer any risk, and I would have had no part in China's fight for freedom. No, I must join the movement when there is a chance to die." And he started for the front.

A CHRISTIAN IN YUAN SHIH-KAI'S CABINET

He was soon made a member of General Li's staff, and acted as Minister of Foreign Affairs under him in the provisional government. The Vice-President, then General Li Yuan-hung, sent him to be one of the representatives of the revolutionary forces in the negotiations for peace. When Dr. Sun Yat-sen became the Provisional President of the Republic, Mr. Wang became his personal representative in important negotiations. Elected a member of the National Senate, he was a power for peace and unity in reconciling the contending forces of the North and South in seeking to hold China together. Soon he was called to be Acting Minister of Commerce in Yuan Shih-kai's Cabinet.

When he was elected Vice-President of the new Senate in Peking, with about sixty other Christians in that national body, he was laboring with high purpose and splendid self-denial as a burning patriot for the welfare of China. Perhaps more than any other man in China he is playing the part that Alexander Hamilton played in the constructive period after the American Revolution.

hink of the significance of this mighty 'ement which is sweeping Asia to- —Asia, the cradle of the race, the hplace of civilization, the teacher of West, the mother of all the great re- ıns of the world, is awakening, Asia, ı its more than nine hundred millions, ıore than half the human race!

ECONOMIC REGENERATION OF ASIA

he economic awakening of Asia is ılly unmistakable. During the latter of the nineteenth century the trade of a increased fourfold and that of ıa sixfold. The trade of Japan has eased sevenfold in twenty years. the twentieth century will see far ter developments in the East than nineteenth. The simple age of agri- ure is giving way to an age of industry, dicrafts to national commerce, and ıtion to the new means of communica- that are producing a new national and rnational consciousness. Based on the sense of nationality in the renaissance :urope, the free thought which led to development of trade in England, ıce, and Holland is producing the e economic development in Japan, ıa, and India to-day. The chimneys he great factories of Osaka and Cal- a tower like those of Birmingham. A ıde or two ago scavengers were picking ıld horseshoes in the streets of London shipping them out to make third- plows for the farmers on the hills of tral China. To-day, digging under e hills in the four central provinces, ' find what may prove to be the great- :oal fields in the world — enough in the nsi province alone to supply the world nore than a thousand years, according he estimates of the German geologist, ɔn von Richthofen. In Central China ' have found iron ore better for casting ı that used to-day in Pittsburg. The .t Hanyang Iron and Steel Works Vuchang, across from Hankow — the :ago of China — employs four thou- l workmen, and is turning out steel ; of the highest quality for the new ɔads of China. If China's manu- ures were developed as efficiently as ıe of America, the gross returns would equal the entire national debt ($877,000,000) in three weeks. Though retarded for a short time by the adjustment of her political difficulties, it will surely, though not slowly, develop these vast resources.

The economic development of India, though somewhat retarded, is equally unmistakable. Its trade has increased during the last half century from $300,000,000 to more than $1,400,000,000. It has in operation 32,000 miles of railroad, which places India fourth in the world in its railroad mileage, carrying 330,000,000 passengers yearly at the rate of five miles for one cent. It maintains 76,000 miles of telegraph line, over which messages can be sent for more than 2,000 miles at a cost of only twelve cents.

INDIA'S ECONOMIC GROWTH

India is now the largest exporter of rice in the world, holds first place in its exports of tea, next to Argentina is the largest exporter of hides, and next to the United States is the largest exporter of cotton in the world. Next to the United States and Russia it is the largest wheat-producing country. The Tata Iron Works in Bengal, employing 8,000 men, have laid down iron in San Francisco at less than the price charged by the United States Steel Corporation.

India's system of irrigation stands easily first in the world, being far more extensive than that of Egypt or America. Its more than 46,000 miles of irrigation canals have reclaimed more than 22,000,000 acres of land, and famine has been prevented forever in some districts.

The same principles that created our Western civilization are at work to-day in the ancient East, bringing about the same great transformations there that they have wrought in the West. So vast and widespread is this awakening that it might well be called "The Renaissance of Asia." And yet it is more than this; it is an intellectual renaissance, a religious reformation, and a nineteenth century of scientific and industrial development all combined. It is even greater in volume and in power than the Renaissance of Europe five centuries ago.

REDRAWING THE RAILROAD MAP OF THE WORLD

A ROMANCE OF MIGHTY ENDEAVOR IN BUILDING GREAT SYSTEMS ACROSS ITS OPEN SPACES — THE PART THAT RAILROADS ARE PLAYING IN THE STRUGGLE FOR THE SUPREMACY OF NATIONS — SOUTH AMERICA THE SCENE OF THE NEXT BIG EPOCH OF EXPANSION

BY

C. M. KEYS

THERE are no more railroad worlds to conquer within the frontiers of the United States. The age of the great American railroad kings, whose dynasties were the envy and the wonder of the world of transportation, is past. Now we engage in the harder task of undoing the things that have been done, of limiting railroad power, of stripping away the great authority that made the railroad magnates, in their day, potentates alike in the world of transportation, the world of commerce, and even the world of politics.

Where, then, are the Huntingtons, the Hills, and the Harrimans of to-morrow to find the work that they must do? It is an impossible thought that genius such as theirs shall be wasted for lack of space and problems upon which to work. Transportation is still too young and the earth is still too big to believe that the things that have been done in this great world of hard endeavor in the last three generations is a work completed forever. Other railroad empires, perhaps greater than any of the past, must rise, and fall again. Other men, as great as Hill and Harriman, must find as great a destiny as these, and pass and fall, maybe. But where, and how, and when?

There is an old Erie Railroad man building a bit of a railroad down in the Andes who has the thing in his heart that makes the transportation world go round. The road is no Pennsylvania System. It is, to be exact, 160 miles long. The rails weigh only 55 pounds to the yard. The gauge is only 42 inches. When he gets it built he will burn, for fuel, wood out of the forests. What the traffic will be remains to be seen. You start out of Guayaquil, in the flat lands of Ecuador, go creeping through swamps, climb up to the peak of the Andes, and career along madly on the same peak until you come to a village called Ambato. That is where the new road starts. It runs east into the wilderness, known locally as the Oriente. It climbs along the mountain sides, steals through lofty passes, climbs hills and dips into valleys until, at last, it will, some day, come out at a village called San Antonio, down on the eastern slope of the Andes. At San Antonio the waters run eastward. That is the story.

On the whole, judging from the descriptions that are available, the railroad is one of those joke railroads such as one may find, by careful looking, in the hilly parts of New Jersey, Colorado, Alabama, and many other states. Yet, at the end of a brief and rather matter-of-fact description of it, Mr. Charles H. Moore, the Yankee engineer in charge, has this to say:

"With the opening up of this great district of the east, and the placing of the Atlantic and Pacific oceans into communication through a comparatively low-grade railroad, a tremendous development may be looked for."

It takes the seeing eye and the understanding heart of one who has held converse in the good old days with the men who pierced our prairies and conquered our mountain ranges to detect in that simple phrase the true inwardness of its meaning. From San Antonio, Ecuador, to the

Atlantic Ocean is almost as far as from Harrisburg, Pa., to the Pacific. So might the man who labored, nearly a hundred years ago, to shove rails from tidewater to Harrisburg have seen in his little task the beginning of the great American transcontinentals of to-day. Mr. Moore and his little staff of railroad men that are building the Rio Curaray Railroad have in them, perhaps, the stuff that made a Huntington.

Let us look at the great dreams of all the world's railroad history and see, if may be, what remains that has not yet come true. Oddly enough, there is no romance in local railroads. A man may build ten thousand miles of railroad running hither and yon all over a country that needs them, and all his labor does not fascinate half so much as the little task of shoving through a thousand miles of road across some vacant gap to make a new main line. There, and there alone, lies the stuff that great railroad dreams are made of.

A generation ago, there was no railroad from New York to the Pacific Ocean. Now there are half a dozen. There was no route from Montreal to the Pacific. Now there are nearly two and a half. The Panama Railroad was the first North American transcontinental. The Grand Trunk Pacific looks like the last. Here, one may say, ends the romance of railroad transportation in North America. Every one of these great roads was a task for a giant. Nearly every one produced the giant. Perhaps the age of giants is over in North America. Huntington, Hill, Strathcona, Van Horne — they may be the end of the roster.

Once, years and years ago, men built little railroads out from Calcutta and from Bombay. Then, in the course of time, they pushed them through and joined them, and India was bridged. It was a great romance. Since then they have gridironed old India with railroads, some of them more useful and more profitable, and nobody cares very much. There was, apparently, room for only one railroad romance in India. Nowadays the railroad business in that queer country is only business. They carry passengers for one third of a cent a mile, and they never kill anybody. Any railroad man knows there is no romance in that.

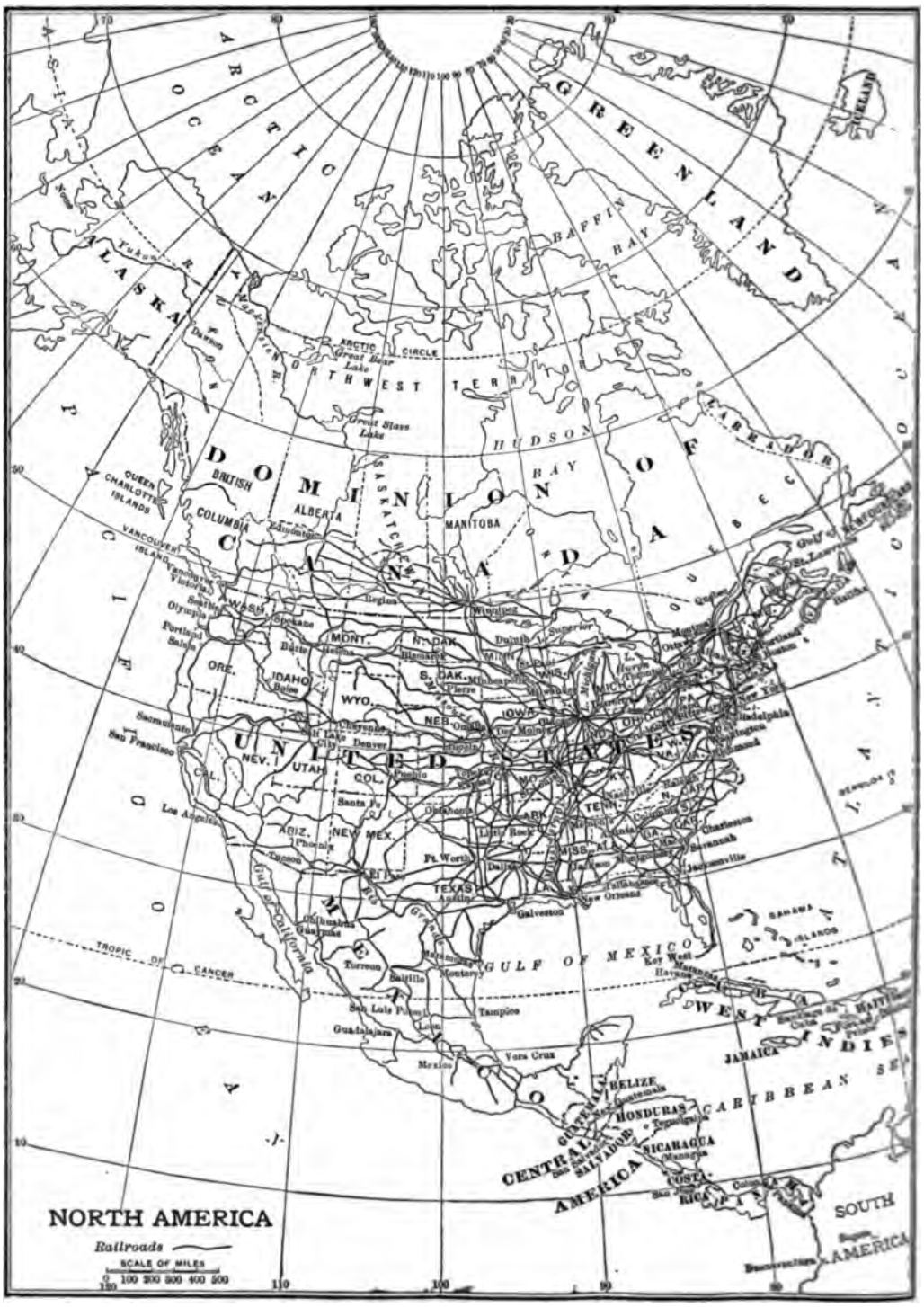
There is a railroad from the North Sea to the Japan Sea. It was built by a nation to capture nations. It has failed of its purpose so far. The Trans-Siberian, all things considered, is the most gigantic railroad task that ever was performed. In money, it will eat up more than $1,000,000,000. In lives, it has destroyed thousands. Its earnings are practically negligible. Yet, at this time, the Russians are laying double tracks on it from end to end! Moreover, they are building one branch of it that would reach from New York to Chicago and leave three hundred miles for sidings, and that will cost more than $150,000,000.

A RAILROAD BUILT TO CAPTURE NATIONS

If that were only a railroad, it would be the greatest railroad mystery of the ages; but it is not only a railroad. It is like the army and the navy of Russia. It is a national expenditure for the conquest of Asia. Some day, no doubt, when the coffers of Russia are filled again with gold, the rest of the story of the Trans-Siberian will be written. Now it is only being dreamed. Probably the men who are doing the dreaming will not live to see the writing.

In Asia there is another project that for a generation has fascinated men. It is the project of a link to tie the railroads of Europe to the railroads of India, so that the Englishman may reach his prized possessions of the Orient without taking so much time about it. Of course, there are other reasons, but that seems to be the main one. Because of political complications, mainly the conviction that Russia would some day certainly grab any railroad that ran toward India and use it for her own purpose, that railroad dream languished. Now it comes true. About 2,000 miles of railroad are to be built, to cost about $200,000,000. No one estimates that it will ever earn its keep. That is one of the mysteries of the way they do things in Asia. Money seems no object. It is the public's money, anyway, so who cares!

There is another railroad project within the boundaries of Asia that is big enough



THE GREATEST RAILROAD EMPIRE AND THE

THE UNITED STATES AND CANADA ARE NOW SUPPLIED WITH ADEQUATE TRANSCONTINENTAL NEW CONSTRUCTION AND IS

NEXT GREAT FIELD OF CONSTRUCTION

AND LOCAL TRANSPORTATION LINES. SOUTH AMERICA, AND ESPECIALLY BRAZIL, NEEDS MUCH PREPARING TO CREATE IT

to hold the fancy of any man, no matter how ambitious or how daring he may be. It has hardly, however, assumed a definite enough form to be considered at the present time even a project. Some day in the distant future, no doubt, it will be built and men will travel on it. Down from the Black Sea to the oil fields on the western shore of the Caspian Sea, two railroads run. They are, of course, Russian railroads. From the eastern shore of the Caspian Sea, another little railroad runs away to the east, through Turkestan, with a branch to the border of Afghanistan. From the eastern terminus of this little railroad there is a gap of several thousand miles across most of Turkestan and the Chinese Empire, in which there is not a mile of railroad either east, west, north, or south. In area, that region is greater than the United States. In population it far outweighs this country. Some day, no doubt, a great trunk line will be built through it as part of the new Chinese and Russian system of Asiatic roads.

AN EMPIRE WITHOUT A RAILROAD

That is, however, too big a project for any individual in the world to grasp. What is more, it seems to be a settled fact that, on account of the mixed political relationships and the strong international jealousy of European and Asiatic countries, there is no room for private enterprise to seize the great opportunities for railroad exploitation and development with lines in these unoccupied spaces of Asia. When the trans-Asiatic trunk line of the South is able to compete with the Trans-Siberian between the markets of Europe and the markets of China and the rest of the Orient, it will undoubtedly be built under governmental auspices. It remains for the future to tell whether the men that plan it and build it are subjects of the Czar, subjects of Germany, or of Great Britain, or citizens of the Chinese Republic or Empire. That task, splendid and fascinating as it is, seems to be set altogether outside the field of individual ambition and endeavor.

In Africa, one gigantic project is more or less under way and a dozen other projects appear to be definite enough to consider them possibilities of the future. The greatest of all African dreams is the Cape to Cairo Railroad.

THE CAPE TO CAIRO PROJECT

A few years ago this magnificent dream was little more than a prospect. It is still very far from completion and nobody knows how many years will pass before one may take a train from the Mediterranean to Cape Town, but the work seems to go on steadily but slowly, as the white man gradually conquers the diseases that bar his progress in the tropics. Already the rails reach far down toward the head waters of the Nile. Already from the south the trains run up across the Transvaal, across Rhodesia, and into the southern corner of the Belgian Congo. Approximately one may say that the rails from the south have covered one third the distance from Cape Town to Cairo and the rails from the north another third, leaving a great gap of about 1,700 miles between the Egyptian Sudan and British South Africa in which the whistle of the locomotive has never yet been heard. Literally that is hardly true, for rails stretch up from the eastern coast of German East Africa and British Africa well in toward the heart of the continent. The German line is to meet the Cape to Cairo line west of Lake Taganyika and the British line, no doubt in the course of years, will meet the long through route west of Lake Victoria Nyanza.

A RAILROAD ACROSS THE SAHARA

Up in Algeria, running down from the coast through Biskra to a little village called Tuggurt, is a French Government line with a name and intentions that suggest something wonderful. It is called the Trans-Sahara Railway. At the present time it is a little narrow-gauge road only 135 miles long. It is planned to cross the great Sahara Desert and to reach ultimately Lake Chad on the northern border of Nigeria. The distance is 1,400 miles and the country through which the road would run apparently offers nothing to induce railroad building. On the face of it, it looks like an official railroad dream rather than like a real project; but in those countries where governments build

;, they seem to be built sometimes the slightest regard to traffic ties or money-making possibilities. ı be said of Africa as of Asia that re seems little, if any, opportunity :ind of railroad enterprise that cre- : great railroad men in the United There seems, in fact, to be mighty :mocracy of capital on either of ›ntinents. The railroad business to be set aside as something re- nd segregated for the activities of ıental capital, of political power, ficial authority. It is hard to find in le of Africa a single project that any sense like a counterpart of at Northern Railway, our Union our Pennsylvania, our Illinois Even the close partnership that :tween the Canadian Government great railroads of Canada seems far more to individual initiative 'age than does the railroad building der which the railroads of Africa ıg constructed. In no great in- :ither in Africa or Asia, is a little ›f private capital going ahead governmental assistance, govern- subsidy, or governmental author- ›en the waste lands of the continent nerce or to establish in waste ew centres of commercial life and :. The kind of pioneering spirit such men as Huntington and Hill front of the crowd in American :ial development seems largely, holly, lacking in the development other continents.

ALIA'S TRANSCONTINENTAL LINE

ıstralia there is almost the same tell. The railroads of that con- ıf course, began in little coast lines here and there through the fertile he great interior of Australia re- ınopened by railroads. A few ıes run down from the north and the east and in from the west, a few hundred miles toward the The first transcontinental rail- just now being built across that t, north and south, but here, too, is in the hands of the Government. little, if any, incentive to gigantic individual endeavor in the railroad field in Australia.

If there is one section of the world in which the conditions surrounding the railroad business are anywhere near akin to the conditions that created the great American railroad systems, it is probable that that section is South America. One who has studied the commercial record of the Argentine Republic, or of Brazil, for the last twenty years, cannot help being struck by the similarity of development in many of its phases to the great period of exploitation which created the commerce of the United States as it stands to-day. The foundation of the two countries is the same, namely, an abundance of agricultural resources easily acceptable in the markets of the world if proper means for transportation are provided.

THE ARGENTINE A NEW UNITED STATES

In the Argentine Republic in particular there are many indications that not only has progress in transportation proceeded along the same lines that we followed in making the American railroads, but also that there remain in that country to-day opportunities somewhat similar to, if on a somewhat smaller scale than, the opportunities that lured men onward to build such systems as the Southern Pacific, Union Pacific, Santa Fé, or even our Eastern trunk lines.

A student of railroads, noting the growth of such roads as the Buenos Ayres & Pacific or the Buenos Ayres Great Southern, finds the development, the history, and the present mode of operation of these roads somewhat similar in a broad way to the development and operation of the Canadian Pacific. Even the tonnage which they carry, the rate at which they have grown, and the habit which they have of establishing a great many collateral industries connected with the railroad business are very much like the characteristics of the Canadian Pacific. Of course, none of them is on such a gigantic scale as the big Canadian trunk line. The Buenos Ayres Great Southern, which is the biggest railroad in the Argentine, had about 2,400 miles of track in 1903 and earned about $14,000,000 gross. In 1913 the mileage

was about 3,500 and the earnings about $33,000,000. The Canadian Pacific is about three times as big in both respects. Leaving mere size out of the question, the parallel is interesting. Both roads are trunk lines in agricultural belts, reaching practically all the important points in the territory which they serve. In fact, both roads have been very largely instrumental in building up and creating the traffic of the cities upon which they now exist and grow wealthy.

The Argentine road is almost entirely double track and the coast country and coast terminals have four or five tracks. Both are high grade railroads physically, using rail of great weight, the metal on the Argentine line being the heavier. The standard section on this South American road is 85 to 100 pounds to the yard, which is well up to the highest standard of American track. However, the gauge is 5 feet 6 inches against our standard gauge of 4 feet 8½ inches, so that in proportion to the weight to be carried the rail is probably not much, if any, stiffer than the rails on the Canadian Pacific. The tonnage of the Argentine road consists mostly of live-stock, wheat, and general goods. In this respect there is one important difference, which is that one of the heaviest items of the Canadian Pacific tonnage is lumber. The two roads are alike in that both live upon a very large proportion of purely agricultural tonnage, live-stock and grain.

ANOTHER CANADIAN PACIFIC

Curiously enough, both roads are at present engaged in constructing and operating a great irrigation System. The Canadian Pacific System on the Bow River and the Buenos Ayres System in the Rio Negro Valley came into being from the same cause, namely, the desire of the two roads to populate and bring into cultivation great areas of country, which had in them all the ingredients of agricultural success except water.

This parallel is interesting not so much as a purely railroad study as because it points to the possibility that in the Argentine there may be to-day opportunities as great as any that ever existed in our own West, or in Canada. There are four great railroads now in existence in that country. Their figures for last year show the following result:

	Average Miles Operated 1912–1913	Gross Receipts	Receipts Per Mile
Buenos Ayres & Pacific Railroad	3,404	$27,953,066	$8,212
Buenos Ayres Great Southern Railroad	3,544	32,846,724	9,268
Buenos Ayres Western Railroad	1,781	14,530,040	8,158
Central Argentine Railroad	2,994	32,446,730	10,837

These are the old established trunk lines of the Argentine. None of them is exceedingly old. In 1865 the entire railroad trackage of the country was 154 miles. It grew very slowly until 1880. From that time onward it multiplied rapidly. In ten years they added 4,300 miles. In the next ten years, they added nearly 5,000 and in the next ten another 5,000 miles. In the three years from 1910 onward, as many miles of railroad track were built in the Argentine as in any previous ten year period.

The pace of construction is strongly reminiscent of a period in the early 'eighties in the transportation history of the United States, in which we created many thousands of miles of our present railroad system. It may be that in a continuation of this building period, and in the almost certain reconstruction period that will follow sooner or later, will lie the great railroad opportunity of the next generation.

The opportunities for railroad exploitation and development in that country are not being neglected. English capital rarely, if ever, neglects anything that looks like a chance for pioneer work of this sort. The capital of Europe has gone into Argentine railroads very extensively in the last fifteen years and is to-day going into the Argentine faster than it is coming to the United States and almost as fast as it is going into Canada.

A PIONEERING SYNDICATE

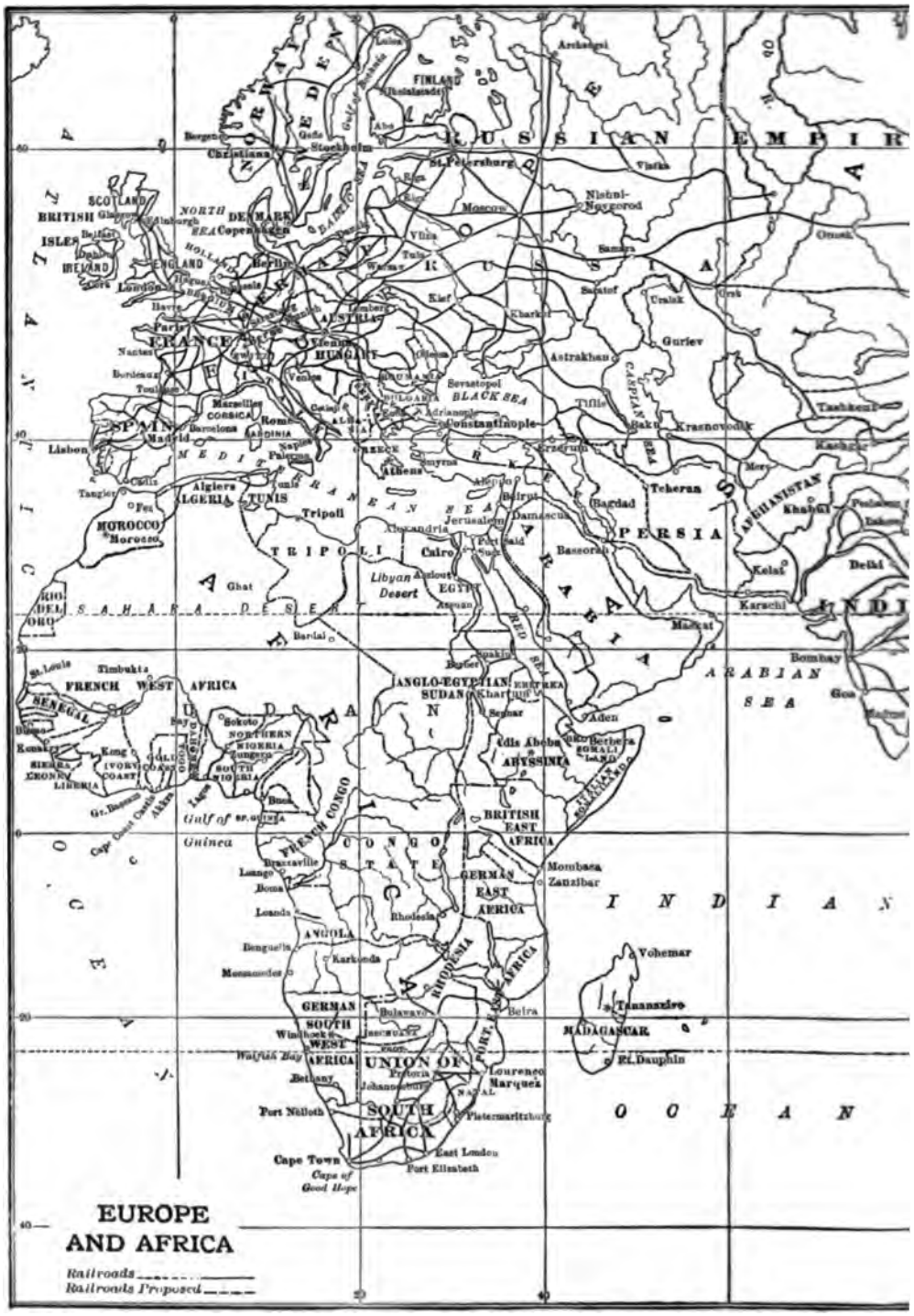
From an American point of view, the most interesting thing that is happening in the Argentine railroad field is the activity of a company that was incorporated in Maine on July 12, 1912, under the name "The Argentine Railway." That com-

' is in part an American company repre-
ng to quite a large extent the same
ests that, a few years ago, created a
interesting episode in American rail-
finance. Under the leadership of
Percival Farquhar, a young and
what over-ambitious financier, a
p of American, Canadian, and Eng-
capitalists undertook the rather dan-
us task of buying control of several
rican railroads to constitute a new
k line system. The railroads upon
h they centred their operations in
country were the Lehigh Valley, the
ash, and the Rock Island. The epi-
culminated in a great fiasco, after
h the three railroads reverted to their
nal possessors, taking with them a
iderable amount of the free cash and
r assets of this group of capitalists.
is setback, serious as it looked at
time, did not dampen the ardor of
pioneering syndicate. It did, how-
, induce these people to believe that
were other fields in the world in which
rprise of that sort might encounter
serious dangers than it met in the
s of Wall Street. The syndicate had
large interests in Brazil, Bolivia,
guay, and Chile, controlling the Brazil
way, Bolivia Land & Colonization
pany, the Uruguay Railway, and the
fagasta & Bolivia Railway. The
ntine Railway was incorporated to
te a new railroad group in the Argen-
somewhat on the lines of the attempt
the same interests had made to create
w railroad system in the United States.
that end a very broad charter was
n out. It allows the company to buy, or
l, or lease, or operate railroads, street
ays, telegraph, gas, electric light, oil,
ng, dock, and various other enterprises,
to deal in land and to do an engineering
contracting business. Under this omni-
charter the company has bought a large
est in the Entre Rios Railways, the Arg-
e Northeastern, the Córdoba Central,
the Provincial Railways of Sante Fé.
rding to the literature of the company,
object is to combine these railroads
ever possible and to improve them and
them up to date "under modern
rican railroad practices." The combination has a good terminal in Buenos Ayres, and has obtained charters to build a good many miles of new railroad in the agricultural plains of the Argentine. It has also purchased very large tracts of undeveloped land at low prices and is proceeding to cultivate some of them and sell and develop others. Another side line is the purchase of large forests of quebracho, which it is expected will turn out to be exceedingly profitable.

AN EXPEDITION FOR PROFIT

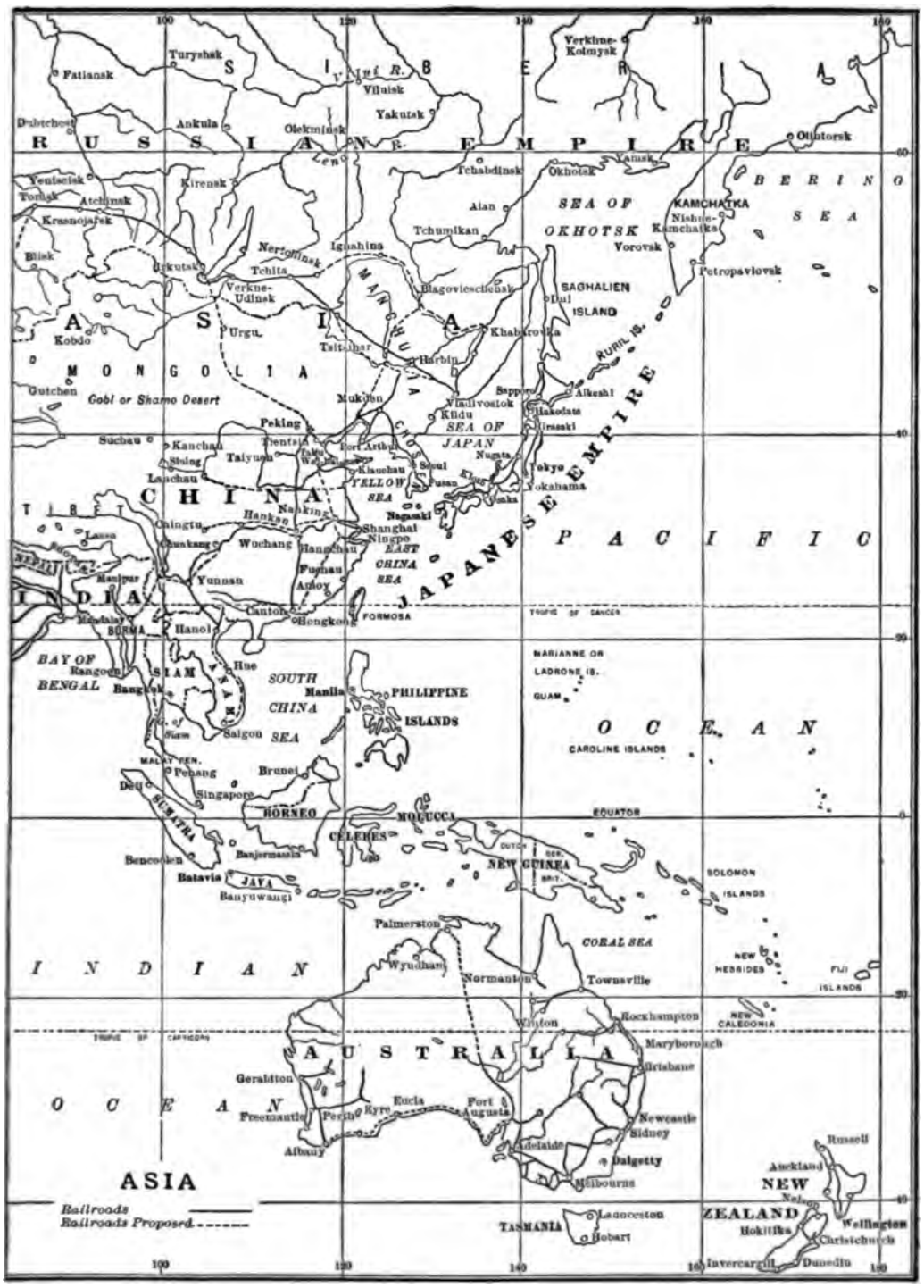
This venture is a typical modern expedition for profit. It is strongly reminiscent in many of its details of the glorious days of the early 'nineties, when men like Harriman, Judge Moore, D. G. Reid, and others were putting together by acquisition and construction new systems of American railroads. It is too early to say whether the operations of this syndicate should be compared with the operations of Mr. Harriman, or with the more reckless, if more spectacular, operations that created the Rock Island, the modern New Haven, the St. Louis & San Francisco, the Gould System, or even the ill-fated Great Central merger. The railroads that the syndicate purchased did not include any of the very powerful Argentine systems, and this fact seems to argue that this Anglo-American syndicate is not likely to become in the near future, by any means, the most powerful interest in Argentine railroads. But when men of an acquisitive character seek railroad power, they are not apt to stop at anything that their capital will justify, and sometimes they have even been known to attempt tasks far beyond them. What we have discovered in American railroad finance in the last two years will not be soon forgotten, nor is it particularly likely to induce private American capital to flow in a continuous stream toward ambitious railroad ventures of the merger class in South America, or anywhere else in the world.

If the Argentine is the most promising railroad field in South America, it is not, by any means, the only one. In fact, the whole of South America is full of stories and records of ventures of the pioneering sort, some of which have turned out well



THE RAILROAD DREAMS AND THE RAILRO

AMONG THE MAGNIFICENT VISIONS THAT ARE SLOWLY BEING REALIZED ARE THE ALL-R
ADELAIDE TO PALMERSTON. ALREADY COMPLETED IS THE ROUNDAB



REALITIES OF THE EASTERN HEMISPHERE

ROUTES FROM LONDON TO CALCUTTA, FROM CAIRO TO THE CAPE OF GOOD HOPE, AND FROM BUT IMMENSELY IMPORTANT ROUTE FROM HONGKONG TO ST. PETERSBURG

and some of which have not. In Chile, the railroads of to-day are practically all Government-owned. The Government has just completed the linking of the north-and- south railroads to make a system running from end to end of the country, following the coast line, but at a considerable distance inland. This linking of scattered railroads to make a connected system probably precludes the possibility of much individual exploitation in that country; and the privately owned railroads of Chile are small and not particularly important at the present time.

In Peru, the railroads have a peculiar interest to Americans because the railroad industry in that country had its very beginning in the daring ambitions and curious faith of an American who must have been imbued with the same kind of courage and gifted with the same kind of vision that created the Central Pacific and most of our other trunk lines.

HENRY MEIGGS'S DREAM

Years ago Henry Meiggs conceived the notion of starting a railroad on the coast of Peru which would cross the Andes and connect at some place in the East with the navigable waters of the Amazon. That was one of the great railroad dreams of the last century. The road was started at the port of Callao on the West Coast, ran through Lima, and climbed the Andes. The construction was probably more difficult than anything of the sort that has ever been attempted on the North American continent. During the upward climb of more than 15,000 feet there are more than twenty switchbacks. The engineering feats involved in the building of tunnels and bridges to surmount the Andes have not been surpassed, for daring, in the records of the North American railroads.

The story, so far as the pioneering end of it goes, ends unhappily, as it so often ends all over the world. The work was pushed forward for some years at a tremendous cost, in money and in lives. The actual cost of the road, as it stands to-day, is more than $200,000 a mile, and it is said that more than 7,500 men died of fever or were killed in its construction. In 1877, when the road had reached a little village called Chicla, in the hea the mountains, Meiggs broke down died from overwork and strain. At same time the Government's treasury out and it was impossible to push the forward. The road stopped and operated more or less unsuccessfully many years. In 1891 the work wa sumed. At that date the Peruvian poration came into existence and took the railroad. It let the contract to com the line to Mr. William Thorndike, anc American, who pushed it forward a the divide, to Oroya, which is now eastern terminus. The railroad is to be the highest railroad in the w It is also one of the highest priced.

THE RICHEST RAILROAD

When one encounters in the record South American railroads such e ordinary figures as $200,000 a mil appears impossible that railroads ca built in that country with any kind chance for profit; for $200,000 is far than the average per mile capitalizatio for instance, the Pennsylvania Rail That it can be done on a small sca evidenced by the São Paulo Railwa Brazil, which is a little road 86½ miles that cost more than $200,000 a mile, that earned last year on its main line than $100,000 a mile, and was able to 14 per cent. on its common stock. largest part of its earnings come coffee. It probably earns more m per mile of road than any other rail anywhere on either American contin the figure being well in excess of Pittsburgh & Lake Erie, or of the Pan Railroad, which stand close to the to the list in volume of gross earnings mile among the railroads operated American interests.

In Brazil there seems to be almos great an opportunity for pioneering w or for financial exploitation, as in Argentine, and possibly, as time goes it will be a bigger field and a more p ising field than any other country in world. Private capital is given plent chance. One finds in that country tentious holding companies somewhat ilar to our American corporations.

Brazil Railway, for instance, like the Argentine Railway, is incorporated in Maine. It had in operation at the last report about 3,000 miles of road and had about 2,000 miles projected or under construction. Apart from the direct lines owned, it had various other railroads and some companies that were not railroads which it held by stock control. Its whole construction and plan of finance seems to be American except that, like the Canadian Pacific, it carries on various collateral enterprises, like cattle raising, the operation of ports, etc. This year, in partnership with a packing house of Chicago and New York, it has gone into the meat packing business in São Paulo. It has also gone into the lumber business on an extensive scale and it seems likely that sometime it may be a gigantic syndicate of many commercial activities. The interests that dominate it are said to be practically the same interests that are represented in the Argentine Railway, partly American and partly British.

BRAZIL THE NEXT GREAT RAILROAD CENTRE

That central Brazil will be the stamping ground for the great promoters and the future home of railroad finance, high and low, is by far the most likely answer to the question with which this article began. If one glance at the railroad map of South America, he will observe that probably 90 per cent. of the railroad lines in the Argentine are solid lines, indicating that the railroads are already built; but that in Brazil, a very much larger country, a very large percentage of the lines indicated are broken lines, to show that they are not yet built, but are projected or under way. Brazil seems now to be full of promoters, some of them Americans, but most of them not. In this lull in American business enterprise, the British have taken a long lead and have far outdistanced American finance and American enterprise. It may be remembered, however, that in the building of our own American systems of railroads, British capital also led. In fact, practically all the pioneer lines of the United States, both east and west, were floated on the Continent. The systems which to-day we call distinctively American, like the Pennsylvania, the New York Central, the Illinois Central, the Northern Pacific, the Union Pacific, and the Santa Fé, were financed to a very large extent in Europe. The actual conception and promotion of the enterprise was, for the most part, American. The Great Northern was promoted by Canadians and built largely by British capital and is to-day a hybrid property with a very considerable percentage of its ownership still resting abroad.

Therefore, it is not wonderful that in the construction and promotion stages South America should be, from the railroad point of view, largely a preserve for British capital. The genius of American finance is not, strictly speaking, a genius for pioneering. It has often been pointed out that Mr. Harriman built very little railroad, and that the late Mr. Morgan, for all his boundless enterprise and courage, was not primarily a railroad builder. These men, undoubtedly the two greatest railroad financial figures in our history, found their life work not in building new lines through vacant places, but in gathering together the ruins left over from periods of inflation, over-extension, and too much courage, and in re-creating out of these broken properties strong and massive enterprises that were better adapted to stand the test of time and the vicissitudes of fortune.

So, in the future, may some Harriman or Morgan pick up the broken fragments of the great Argentine system, or the great Brazilian system, and put behind them the magic of a great name to draw into the treasury the funds of all the world, just as, in the reconstruction age of American railroads, these transportation and financial geniuses created out of the wrecks of a former period the present railroad systems of our country. Certainly there is no other field in all the world which seems more likely to constitute such railroad dynasties as these men created and upheld in this country during their lifetime. The land is there to be tilled and cultivated. The possibilities of profit are there to be seized and exploited. The foundation is already laid, and the only question remaining is, who will be the builders of the coming generation?

REMOVING THE BLINDING CURSE OF THE MOUNTAINS

HOW DR. McMULLEN, OF THE PUBLIC HEALTH SERVICE, IS ORGANIZING THE WAR AGAINST TRACHOMA IN THE APPALACHIANS — RELIEVING THE PITIABLE CONDITION OF THOUSANDS OF AFFLICTED CHILDREN AND ADULTS, AND SETTING AN EXAMPLE FOR FURTHER WORK TO BE DONE BY THE STATES

BY

CONSTANCE D. LEUPP

TWO years ago a cry for help came from Kentucky. Miles from the railroad, up in the mountain counties, the people were suffering from trachoma. How long it had been rife there, where it came from, and how severe or how widespread it was, no one knew. Only the local health authorities had found that they were unable to cope with it successfully. Then they sent their cry for help to the United States Public Health Service.

It is hardly fair to call trachoma a filth disease, although it owes its prevalence to insanitary living. It is a painful and disfiguring affection which attacks the inside of the eyelid first, resulting in inflammation which in turn as it heals results in scar tissue. It is this scar tissue which, constantly irritating the eyeball, causes the formation of scars across the cornea, producing blindness.

During the progress of the disease, the patient cannot read and the eyes are so intensely sensitive to light that he is in continual pain.

If neglected, the disease will last a lifetime; even when treated its results are apt to be terrible. The scars are disfiguring and cause impairment of sight.

Authorities differ about the proportion of neglected cases that result in blindness; some put it as high as 75 per cent. All agree that it is so high that the disease is a serious menace to the well-being of any community where it gets a foothold.

Though trachoma is classed as "dangerous and communicable," intelligence and ordinary sanitary precautions on the part of a patient will keep it from spreading from one member of a household to another. On the other hand, the common sharing of toilet facilities will from one sporadic case make patients of all the members of a household. Such is the hideous, blinding curse that has fallen upon hundreds of people in the little settlements in the mountains.

Now it is neither the duty nor the privilege of the United States Public Health Service to go into any state and lift from the shoulders of the local health authorities their responsibilities for curbing an epidemic. Ordinarily an epidemic can be handled by a quarantine and is promptly checked if the law is properly administered.

But here the case was different; the stubbornness of the epidemic, the origin of which nobody knows anything about, required a different treatment and one that the health authorities of the state were wise enough to recognize they had not the facilities to command.

First, it required an investigation of the prevalence of the disease geographically and of what one might call its intensity — the proportion of the population afflicted. Next, a demonstration was needed of how to get at and cure those already diseased. Third, a campaign of education to teach the people how to prevent its spread.

The first work was put into the hands of Dr. John McMullen, Passed Assistant Surgeon of the United States Public Health Service, perhaps the best diagnostician of trachoma in the country by virtue of many years' experience in examining immigrants at Ellis Island.

r. McMullen is an imperturbable, er deliberate man of wisdom and medi- . In the summer of 1912 he disap- ed into the wilderness on the Kentucky of the Appalachian Mountains where form the great divide between Ken- y on the west and Virginia, West inia, and Tennessee on the east and h; later he emerged with a report.

In company with Dr. R. W. Duke, county health officer," he writes, "I ved on July 12th at Hindman, the ity seat of Knott County, twenty s from the nearest railroad and hed on horseback over very rough ls. Since my examinations were only the purpose of determining the alence of trachoma, with insufficient for clinical work, it was a question best to proceed in order to secure ortunity of examining a sufficient ber of people.

THE MOUNTAINEERS' "SORE EYES"

I found the people much interested willing to lend their assistance and ty coöperation to any measure which ht benefit the appalling numbers ering from the 'sore eyes' or 'granu- d lids,' as trachoma is known here, this was particularly true of the ors of Knott County. The majority he country schools were in session at time, but none of the town schools, it was decided to visit as many of former as possible, in various sections he counties, since some communities much more heavily infected than are rs, 60 or 75 per cent. of families being cted in some neighborhoods. These ols could be reached only on horse- , as the roads are bad, often only the y beds of creeks.

The examination of four schools, which the usual day's work, meant a ride wenty or more miles. Many persons examined along the roadside and he homes in passing, and there was tically never any objection to having r eyes examined, as the people are well ainted with 'granular lids' and its ful consequences, usually willing to uss the subject, and interested in ning matters pertaining to health.

"The investigation included Knott, Perry, Leslie, Breathitt, Lee, Owsley, and Clark counties, in the order named. All these are in the mountains except Clark County, which is in the blue-grass region, but bordering on the mountain counties. A total of 3,974 people were examined, and five hundred of them, or 12½ per cent., were found to be suffering from trachoma in its various stages. The diagnosis of trachoma, for the purpose of this report, was made only in positive cases; those only suspicious were not included, but doubtless some of them were beginning trachoma.

"Of the total number examined, 2,796 were school children from the mountain counties; 338, or about 12 per cent., had undoubted trachoma, while in Clark County, which is in the blue-grass region where living conditions are totally different, only fifteen cases, or about 3½ per cent., were found affected among the 436 school children examined. A total of 3,232 school children were examined.

"If conditions, as found in the child, are to be taken as an indication of what is in the home, certainly a 12 per cent. average of trachoma among the school children indicates an appalling amount of trachoma in the homes of these good and honest people in the mountains.

"Dr. Stucky, a local physician, reports that in one mountain county he examined 100 cases in two days, 25 per cent. of whom had trachoma or other infectious disease of the eyes. Also in another mountain county he 'examined more than 200 cases; 25 per cent. and more of these had trachoma. Many of them were the most pitiful and hopeless I had ever seen.'

"It is obvious that trachoma is plentiful, but it is difficult, outside of schools and public institutions, to secure the examination of sufficient numbers to give exact percentages. However, on the opening day of court week in a county seat, I examined the eyes of 245 people in a routine manner, regardless of whether any diseased condition existed, and found that 45 of them, or about 18 per cent., had trachoma, and about 10 per cent. showed corneal complications. The ma-

jority of these were men, heads of families, from all sections of that county.

IDENTIFYING RELATIVES BY TRACHOMA

"In examining the eyes of school children it was my habit to request the teacher to write down the names of such pupils as had trachoma, and I was able in this manner to pick out entire families, as all usually had the disease. In many cases the teacher informed me that some of the worst cases were not in school that day and were often absent on account of 'sore eyes.' In one particular instance the teacher volunteered to send for the remainder of the children, and produced seven of the worst cases of trachoma I had ever seen, much like the old 'Egyptian ophthalmia' formerly seen among immigrants. The remainder of this family were absent from home or the eyes were too acutely inflamed to make the trip to the schoolhouse possible."

So much for the prevalence of the disease. The doctor continues with the same restraint, conscientiously avoiding all exaggeration, to give some idea of what the affliction means to the patient.

"Among the hundreds of cases of trachoma seen among these good and honest Anglo-Saxons of the mountains," he tells of small children, shut up in darkened rooms, getting behind the furniture to shut out all light from the eyes, so intense was the suffering. Many of them had not seen light for weeks or even months. In one of the schools a number of the nearer neighbors were present, and there were cases of trachoma ranging from the acute onset in the small child to those cases in adults which had lasted a lifetime and had ended in total blindness.

Picture a mountain region so remote that the nearest town of any size is, by grace of a casual railroad service conspiring with the miles, a two days' journey away, and as far beyond the ken of the landlocked mountaineers as if it were at the Antipodes; picture an isolated folk peopling this remote and desolate, albeit beautiful, country living into old age with no wider knowledge of the world than that obtained from periodic visits to the county seat, with its four hundred inhabitants.

Large families are the rule on these upland farms. Often there are from ten to fifteen children in one household, and frequently the cabins consist of only one room in which all the members of the family cook, eat, and sleep.

THE FAMILY TOWEL

In some cases the family wash-basin is a large, hollowed-out stone, half buried in the ground near the well, and it is seldom if ever entirely emptied or cleaned; the family towel is used by the whole family for days on end. In winter the cabins, even if they have windows, are hermetically sealed. Many of the children walk for miles over bad roads to ill-ventilated schools.

The pathologist in his laboratory could not prepare a better culture bed for the artificial propagation of illusive and fragile bacteria than these people prepare, by the simple omission of ordinary sanitary precautions in their daily lives, for the sturdy and tenacious germs of trachoma which found their way among them at some unknown time from some unknown source. Consequently the disease has grown and flourished.

Against this fearful state of things, Dr. Stucky, of Lexington, Ky., has been making a plucky single-handed fight for years. Under the auspices of the Woman's Christian Temperance Union Settlement at Hindman, he has been conducting semi-annual clinics. With the help of Miss Butler, the trained nurse at the Settlement — known throughout the region as "the angel of the mountains" — he had succeeded in giving temporary relief to five or six hundred cases a year.

As Dr. Stucky well realized, these clinics merely scratched the surface. How was the Public Health Service going to handle the situation?

There was no precedent except the work of the British Government in India. And since the British Government is spending millions of dollars in stamping out trachoma among the natives, there seemed little in its example that Dr. McMullen could follow. For Dr. McMullen was canny enough to see that the most unwise policy he could follow would

be to spend much money, even if the Service gave it to him. For his task was to teach people who were very poor how to guard themselves against the disease. Manifestly, he could do this seemingly easy thing only by getting the best possible results from the simplest possible equipment and by spending the least possible money in his demonstration work.

To gain the confidence of these simple, proud people, miracles were not amiss, nor was the doctor averse to appearing a little like a magician.

THE MAGIC OF THE HEALER

How could the teacher and the pupils tell, when he walked into a country school and picked out which children were brothers and sisters, that his practised eye was spotting case after case of the disease? And when patients came to him with things less stubborn than the trachoma he was studying, and a drop or two of atropin cleared their vision in a twinkling, was it strange that tales of the healer began to travel back to the land-locked hamlets of the mountains?

So, using these experiments of his investigating trip as his cue, Dr. McMullen thought out how to begin his campaign against the disease, and he opened that campaign last fall.

In Hindman, the county seat of Knott County, the ranking metropolis of the region — four hundred inhabitants, twenty miles from the railroad — he established the only hospital to be found within a two days' journey.

It was not an imposing structure; it was reassuringly familiar and yet oddly strange to the eyes of the natives. It was one of the plainest of the old town houses, rented for ten dollars a month, remodeled for convenience, freshly papered and painted and scrubbed. Behind it, in place of the old iron waste pipe that had carried sewage into the brook according to the custom of the neighbors, two barrels, a T pipe, and a bit of wire screening arranged themselves into an inexpensive but chemically correct septic tank.

"Tell everybody to come!" the word was passed around throughout the country for miles. "It's *your* hospital; now come and celebrate its birthday-party." Notices were sent to the churches and the schools, and when the great day came, the people came, too, the well and the sick, the halt as well as the blind. And all brought flowers until the placed looked like a garden.

THE FIRST HOSPITAL

There was the simple little building with nothing to distinguish it from the houses about it except the big American flag and the truly wonderful cleanliness. At the shining windows were clean shades and fresh curtains, the latter made of inexpensive Hindman muslin. Under foot, in place of the old begrimed boards, was a spotless white flooring due not to the carpenter's art but to a liberal application of sand soap and elbow grease. And there, between the rows of flower-decked beds with their white spreads, each embroidered with the coat of arms of the Public Health Service, stood the beaming doctor, resplendent in full dress uniform, and three smiling nurses in their starched white dresses.

It was a vision of simplicity and cleanliness; a miracle of kindliness and common sense. And to many of the mountaineers who had come in from the upland farms where they dwelt in dire poverty and isolation, it was a revelation.

And the wonders of modern medical science began at once.

For among the visitors that first day was a blind old man who had been led there on foot, stumbling over the roads, from his home fifty miles away. The diagnosis revealed not trachoma, but cataract; he was operated on and put to bed. Ten days later he was home again; and he was able to see, for the first time in twenty years.

And far and near spread the tale of his recovery, and of the recovery of others who followed his example.

From another neighborhood came a family of three, a young man, his wife, and their child. The girl had somehow escaped. The man and the baby were both afflicted and in great pain, with cloths tied around their eyes. For a hundred days, as the man expressed it, he had been blind.

Two weeks later, after the young father had been operated upon and had been released from his confinement in a darkened room, he looked around him and saw; and he heaved a great sigh.

"'Fore the Lord, I didn't die!" he burst forth, venting for the first time all the terror and doubt which had been pent up within him during the days of his long and tedious treatment.

"When I lef' home the folks all said, 'Ef you go down there to the hospital they'll put you to sleep and it 'pears like you won't wake up no more.' I'm goin' back to Painter's Creek to tell them *it ain't so!*"

So back they went rejoicing to tell the story to the wondering neighbors; he and his baby were not cured but vastly improved. And in their hands the parents carried medicine, in their heads some concrete ideas on sanitation, and in their hearts an abiding faith.

And so the gospels of cleanliness and health are slowly spreading.

"THAT HALP A-POWERFUL"

Some one has said of these simple and lovable people that under the calm exterior they boil like a kettle of water. Of stoicism under the knife there are many cases. Dr. Stucky reports of one old woman that after a difficult operation on one eye she drew a deep breath and exclaimed:

"That halp a-powerful, doctor! But if you'll just whittle a bit off the other eye it'll halp a lot more!"

It was last September when the Hindman hospital was opened. In November its twin was opened in Hyden, the county seat of Leslie County, an equally remote and equally tiny metropolis. At the close of March the third demonstration station was opened at Jackson, on the railroad. Up to June 6th, when the oldest had been running only nine months and the newest as many weeks, there were 6,726 treatments, 521 hospital cases, and 549 operations to the credit of the three hospitals. And this notwithstanding that winter is the off season when supplies are brought in with difficulty on muleback and patients find it hard to get into town over the frozen roads.

Dr. McMullen now has a central office in Lexington and a doctor and two nurses in residence at each hospital with a head nurse in charge of all. Each hospital is costing approximately $25 a day to maintain, including salaries, and the three are covering an area of one hundred square miles with their merciful services. Besides the actual treatments, the hospitals are centres for a great educational propaganda; Dr. McMullen has sent simple literature on how to guard against and how to cure trachoma into every household in four counties; he and his assistants seize every opportunity to lecture on it in schoolhouses and in churches, in and out of season, whenever and wherever the occasion presents itself.

In this way the Public Health Service has made a very telling demonstration of what any county could do at the moderate cost of $9,000 a year. It hopes that eventually the states and the counties will take over the work and carry it forward.

And meanwhile, besides this intensive study and demonstration work at the point where the disease was most rife, the Service is completing its job by finding out where else it exists.

Over in Jefferson County, across the state of Kentucky, the 35,297 school children have been examined and the name of every child with trachoma is known to the local health authorities. And on the eastern watershed of the Appalachians, through West Virginia, Virginia, down into the Carolinas, into eastern Tennessee and Georgia, the doctors of the Public Health Service are at work studying and reporting on the eyes of 70,000 school children, while, scattered through the Western states, fifteen other doctors are at work among the Indians.

Before it gets through, the Health Service hopes to make a complete demonstration of how to make trachoma in these states as extinct as the dodo.

WIRELESS UNDER THE WATER

MARKABLE DEVICE THAT ENABLES A SHIP'S CAPTAIN TO DETERMINE THE :XACT LOCATION OF ANOTHER SHIP EVEN IN THE DENSEST FOG — A NEW SAFEGUARD AGAINST THE DANGER OF COLLISION AT SEA

BY

BURTON J. HENDRICK

ɴ THE latter part of May the *Empress of Ireland*, a Canadian Pacific steamship, sank in the St. Lawrence River, losing more than 1,000 passengers. A Norwegian collier, hurrying in a struck the great passenger vessel ;hips. It is easy enough to moralize the responsibility for this accident. is is written, a learned commission is ʒ voluminous testimony. In the mind ordinary observer, however, the diag- involves no particular difficulty. ;imple fact is that these ships were ating in a fog. They had no means tifying each other of their respective ons. Whether one was sailing fast he other slow is important as indi- ʒ carefulness and a sense of responsi- in the respective commanders. The accident might very well have hap- , however, had both vessels been eding cautiously. The ultimate cause ɜ disaster was the fog. As long as ıasters have no way of protecting ;elves against this treacherous enemy, ons precisely like this will take place. ɔut two weeks after the *Empress of ıd* disaster, a tug boat, the *Neponsett*, a party of scientists and newspaper ıboard, was lying near Boston Light-

The man in charge, Prof. Reginald ssenden, stood on the deck with an ıry telephone receiver to his ear. ıight was dark; the sea choppy; the ;phere on the tug one of tense expect-

For a considerable time Professor ıden stood at the telephone patiently ıg. Suddenly a smile crossed his nd he shouted, "I've got her!"

ɜ telephone receiver was passed d one by one to the professor's ;. There came from it unmistakable, sharp, staccato sounds: dots and dashes of the Morse code resembling somewhat the snappy buzzing of the Marconi wireless. The sounds kept going for nearly two hours, until nearly midnight. About an hour after they started, the lights of the collier *Devereux* appeared from the general direction of Cape Cod. As she came nearer and nearer, the soundings in the telephone receiver became louder. The collier *Devereux*, in fact, was sending these signals. When they began it was thirty-one miles away from the tug. The first signals, therefore, sounded faint; as the ship drew near, however, they became almost shrieks. One could hear them without the telephone. The dots and dashes represented an entirely new kind of wireless. Unlike the Marconi and other systems of sending messages, this new kind of telegraphy does not come through the air. It comes through a much more efficient sound conductor — the water. Over the *Devereux's* guardrail, well sunk in the water, hung a queer looking metallic contrivance, suggesting in shape somewhat a kettle drum. Over the *Neponsett's* side hung its twin. Each was furnished with a copper diaphragm, which oscillated 5,000 times to the second, making the shrill musical sound already described. These sound waves traveled through the water at an immense speed, and, striking the diaphragm on the *Neponsett*, made a kind of phonographic record of themselves. Telephone wires carried this record to the listening ears on deck.

Imagine, for a moment, that the *Neponsett* and the *Devereux* had been steamships navigating in a fog, like the *Empress of Ireland* and the *Storstad*. Clearly they could have kept the closest track of each

other for a distance of thirty miles. All this time each would have known precisely in what spot of the sea the other was. There would have been no guesswork, and one could not have rammed the other except in full consciousness of what it was doing. It could pick out its ship in the dark or in the fog as unerringly as in a bright sunshiny day. This is what makes the new Fessenden signalling system valuable. It is the one thing that gives it an advantage over a foghorn or wireless. It tells you, without deception, where it is. Neither foghorns nor wireless are able to do this.

They cannot do it because these methods of communication use a very faulty medium for the transmission of sound — the atmosphere. The air into which we speak carries our voices most deceptively. It has no uniform density; it is constantly filled with agitating cross currents and areas of different temperature. When the sound waves start in the air, therefore, almost anything may happen to them. They may go up or down, or right and left; they may travel in a circle, or even sharply turn corners. Under ordinary circumstances, it is practically impossible to distinguish the direction whence they originally come. The everyday foghorn constantly illustrates these vagaries of the air. The nations have spent many millions of dollars in equipping foghorn stations; and no steamship goes to sea without a horn of its own. The skilled mariner, however, knows that there is nothing more untrustworthy. In a dense fog a blowing horn terrifies rather than encourages. The captain knows that a ship is somewhere near, but often he has not the slightest idea where. The sound may seem to come from the north and really come from the south; it may seem far distant and actually be near at hand. One particularly annoying phenomenon is the zone in which there is no sound at all. The horn may blow in a certain place; an air current may then take the sound up, lift it far above the ship, and deposit it at sea level again several miles away. That is, a near-by ship may not hear it at all, though one at a great distance *may hear it perfectly*. This is the reason why disasters in fogs, under present conditions, are inevitable, however skilful or conscientious the navigators may be. So long as men depend upon the air for their sense of sound direction, they will fall into frightful calamities.

THE WATER AS A CONDUCTOR OF SOUND

But there is one medium of sound conveyance that never leads one astray. This is the water. The water is uniform in density and practically uniform in temperature. Consequently, sound in the water always travels in straight lines. Strike a bell under water, and the sound waves immediately start in all directions at uniform speed and in straight lines. The sound travels farther and much more rapidly than in the air. It also makes more noise. For many centuries men have been acquainted in vague fashion with this phenomenon of sound transmission.

Slowly, of course, but ultimately, it occurred to several people that this principle might have practical applications. Why not use it for signalling from the shore to passing ships or from ship to ship in transit? The value of such a device in protecting ships from reefs and shoals, and from each other, was clearly apparent. In the latter part of the nineteenth century inventors in several countries set themselves this task. The literature of the subject contains a large number of experiments and patents. The problem, however, involved many difficulties. One thing was easy enough. A bell, struck under water, could be heard on a ship at a distance of several miles provided only that the ship was standing still. A pneumatic speaking tube, sunk in the water, or one of several telephone contrivances, caught the sound fairly well. But the trouble started when the ship began to move. For then numerous other noises started up, in addition to the striking bell. The swish of the water on the side, the churning of the propeller, and the vibration of the machinery completely drowned the tinkle. The real problem, therefore, was the invention of a contrivance that preserved this bell sound above the roar of the other noises. Prof. Elisha Gray, famous for his labors on the telephone, was work-

›n this when he died. Mr. Arthur J. dy, of Boston, captured the secret in . He constructed a small tank, h he riveted to the skin of his ship on nside. He filled this tank with sea- r, and in the water placed two micro- ıes, connected, by wire and telephone ratus, with the bridge of the ship. The d waves of a sunken bell would travel ıgh the water, strike the side of the go right through the steel and into water in the tank. Here the micro- ıes would take up the sound and trans- t over the wire to the captain's listen- ear on the bridge. Above the roar ıe fiercest storm and the dashing s on the side, the striking bell could ard with the utmost clearness.

IRECTION FIXED WITH CERTAINTY

rhaps the most interesting part of the ıtion was the way the captain located direction. As I have already said, is nothing uncertain about this; the ıerged bell does not play tricks like oghorn. This is because the sound s under water travel always in straight Still, they travel in all possible tions: up and down, right and left — he ripples caused by dropping a stone water. How, then, can the captain, he hears the ringing, know where the l is coming from? If he heard only ıound he could not tell at all. But ship contains two tanks, one on each As the captain listens, therefore, two telephone receivers, one to each he usually hears two sounds. One, ally, is considerably louder than the —the one, that is, which is turned directly to the bell. The captain turns his ship, until the other side ıes the bell more distinctly. By euvring his ship for a few minutes he y gets it in a position where he can the bell with equal distinctness on sides. He knows, therefore, that his l is pointing directly at it — that is, nows the direction whence it comes. eep out of danger, all he has to do is ully to steer his ship away from this tion. A captain that would steer e direction of such a bell would steer tly with eyes open at a reef.

This invention, however, was useful only in protecting ships from shoals and rocks. The bell was always stationary on shore; only the receiving apparatus moved, on the ships. Few understand, however, the wonderful progress this signalling apparatus has made in the last ten years. It is no longer a submarine curiosity; it is an every-day, practicable fact. Nearly all the civilized governments are rapidly equipping the dangerous spots on their coasts with submerged bells. The United States, the home of the invention, has fifty-two in Pacific and Atlantic waters and on the Great Lakes. Canada, England, and Germany are rapidly protecting their coasts. Even China is beginning to put them in. Many of the great ships have the receiving apparatus. The captains find the bells useful in laying their course. The transatlantic liners now invariably make Nantucket Light by picking up, long before its light can be seen, its constantly striking submarine bell. They find it to a certainty even in the densest fog. There are now twelve hundred ships equipped with this apparatus; these include those of the greatest lines — Cunard, White Star, North German Lloyd, and the rest. Nearly all the United States warships likewise carry the protecting tanks.

The *Empress of Ireland*, which went down in the St. Lawrence in late May, had the submarine signal; it was useless, however, as a protection against another moving boat. Professor Fessenden's new device, recently tried out in Boston harbor, meets this particular need. He has solved the problem of submarine signalling from one moving ship to another. In this experiment at Boston he succeeded in communicating at thirty-one miles; such a great distance, however, is not necessary. For protection against fog, clear signalling at a distance of five or six miles suffices. If one ship can precisely locate the position of another at that distance the densest fog has no terrors to navigators. This the new Fessenden apparatus does easily. It is safe to say, therefore, that there is only one remaining danger in fogs at sea, and that is human fallibility. Shipmasters now have an instrument which really gives

them a sense of touch in the foulest weather. They can locate a sister ship as distinctly as they can see a lighthouse on a clear night. It remains only for them to use it intelligently and conscientiously.

ITS USE IN RESCUE WORK

Besides locating other ships in a fog, the new contrivance has other important uses. It has particular value as completing the work of wireless. In recent years nothing has touched the imagination quite so much as the wireless signals sent out by ships in distress. By itself, however, the wireless call for help is not complete. The wireless can summon other ships; it gives them only indefinite instructions where to come. The captain sends his position, as best determined under the circumstances; before the rescuing ship arrives, however, it may have considerably changed. Indeed, unless the skies are clear and the sea calm, it is difficult for one ship at sea to find another. They may wander around for hours, when they are only four or five miles apart, without catching a glimpse of each other. In fog or rough weather, they may almost touch hands and yet remain unconscious of each other's progress. The search of the *Baltic* for the *Republic* — the first rescue in which wireless figured conspicuously — illustrates this perplexing fact. The sea on this night was extremely foggy. As soon as Captain Ransom, of the *Baltic*, received the *Republic's* hurry call, he made rapidly for the indicated spot. But he could not find the vessel there. He zigzagged around for twelve hours, traveling about two hundred miles in a square distance of less than ten miles. Several times he must almost have run into the *Republic*: he was within a hundred feet before a faint green light, shining dimly through the fog, told him that he had reached his quarry. The ship fortunately remained afloat; but the twelve hours taken up by the *Baltic's* search gave it plenty of time to sink.

There was another remarkable case in January of the present year. The Hamburg-American *Abessinia*, crippled by a great storm, sent out the usual wireless. Two ships, the *Cedric* and the *Armenian*, arrived on the scene at almost the same time. The *Armenian* signalled to the *Cedric* that she could see the lights of the drifting *Abessinia*. The captain of the *Cedric* assumed that the disabled ship was properly taken care of and resumed his own course. Soon after he had left, the fog sank again between the *Abessinia* and the *Armenian*. When the *Cedric* passed out of wireless communication, the *Armenian* was still blindly groping to find the disabled vessel. The *Abessinia* was not lost, but the experience illustrates the difficulty of finding a drifting vessel in a foggy and dirty sea. A few months ago the *Carthaginian*, bound from Rotterdam to New York, caught fire and sent out a wireless call. The *Uranium* started to the rescue, but groped around for three days without finding the slightest trace of the lost vessel. Happily, the *Carthaginian* succeeded in putting out the fire.

No, success at rescue demands some more definite way of fixing position. This new submarine signalling contrivance does this completely. A ship equipped with both this and wireless could hardly come to grief, provided the captain used them conscientiously. In case of accident, the wireless call would give the ship's general position. As the rescuing vessel approached this general location, the captain, standing on the deck with two telephone receivers, one at each ear, would hear the buzzing instrument of the other ship. On one side the noise would be fairly strong, on the other fairly faint. He would manœuvre his vessel until he caught the signal with the same distinctness on both sides. He would then know that the disabled ship was precisely in front of him. He would then steer directly in the direction of the sound. No more zigzagging — no more wandering blindly in the dark. He would have a point at which he could directly steer. With this same contrivance he could easily telegraph, using the Morse code, with the other captain. One of the possibilities is that he might even telephone. Already, with this apparatus, people have telephoned a distance of half a mile. As a medium for wireless telephony, the water is clearly more useful than the air.

THE EFFICIENT VACATION

'ORIES AND BUSINESS OFFICES THAT STOP ALL WORK FOR TWO WEEKS IN THE SUMMER — HOW THE PLAN SAVES WASTE AND CONFUSION — OTHER SUCCESSFUL DEVICES FOR INCREASING THE USEFULNESS OF THE SUMMER HOLIDAYS

BY

JANET RUTH RANKIN

N THE summer months, a whole business organization, like the individuals composing it, is apt to be troubled by a disease — the vacation disease. When one group of em-ɔes goes away for two weeks, and then her group for two weeks more, you a continuous state of disruption in business as a whole. The summer :hs are poor months for trade on just account. Business is slack because ıess is inefficient.

ıd so has arisen the Efficiency Vaca- This is literally a resting of the e organization at one time, for the ıate well-being of it and its members. prescription runs somewhat like this:

VACATION NOTICE

e employees of our general office, factories, ales offices everywhere will take their an- vacation from Saturday night, July 25th, ɔnday morning, August 10th, this year.

ıergency orders only, for new equipment, 's, or supplies, received by mail or tele- :, will be cared for during this time as at periods of the year.

ıny business heads, especially those ıe old school, boast of never having ı a day from work in uncounted years. rs, a fortunate few, follow the doc- of the firm in Indiana which insists week's holiday every two months as a num for proper clear-headedness on ɔart of its assistants. Almost every :rn business admits the necessity for ays of some sort. Until the millen- turns work into play, men will claim right to periodical leisure, and so the vacation problem will have to be ɔned with.

ıd it is a problem. Go into an office with a request that means exact and detailed information, toward the last of July. Mr. Adams isn't here to tell you about this point; he is fishing in Canada. His brother is in town, but he leaves for his vacation this afternoon, and he is away packing now, presumably. Mr. Maxwell, to whom you are talking, will address you as from an immeasurable distance; and of course the information you require will be immeasurably farther away — perhaps on the shores of some lake in Maine.

Vacations are a problem from the standpoint of the business head also. Ask any business man what it means to the total receipts of the business to have to hire and break in new help for the summer months. When the original force tries to meet the total work, four men must do five men's work for ten weeks, as they individually take their recreation time. The results to the business are obviously bad.

That an entire business should take a vacation seems at first glance foolhardy, in these days of continued effort and vigilance as the price of dividends. That such a policy should bring increased earnings to the company seems still more unlikely. But a simple problem in arithmetic will show the basis of the action. There are twelve summer weeks in the year. Take ten weeks of full business activity, and two weeks of no activity, and compare the sum to twelve weeks of half way efficiency. The result has been the Efficiency Vacation, as practised by the Elliott-Fisher Company, of Harrisburg, Pa.

Here the work of the general offices, factories, and sales offices everywhere, in this country and abroad, is suspended for two weeks in the late summer months. The

plan has been in use for four years. June, July, and August had always been looked upon as dull months for business in the Elliott-Fisher Company. This was so because a certain percentage of the employees were away during all that time, and the work was consequently in a state of disruption. In the small branch offices the conditions were even worse than in the large ones. Elliott-Fisher maintain sixty-six branches here in the United States and seven abroad. In many of these only one man carries on the work, or at most a manager and assistant. In these offices, that they might keep open all summer, new assistance had to be procured merely for the two weeks when the manager was out of town. This added appreciably to the expenses of the business, and the new help, with no special responsibility or knowledge, was inefficient.

Business would be practically at a standstill for the holiday period, and worse: it would often take the returning manager days or weeks to get the books and general system into shape for work again. Almost as well have no vacation, the managers thought, as to have one that is haunted by the spectre of inefficient work back at headquarters.

HOW THE PLAN WORKS

For many years before 1911, when the general vacation was instituted, the Elliott-Fisher Company had closed their factories for two weeks and gave the employees that amount of rest without pay. This offered opportunity for the thorough overhauling of the factory equipment. Emergency orders could be filled at this time by keeping on a very few assistants.

The idea of the general vacation was taken from the partial one. The management decided that all the departments could be closed for the two weeks with advantage to the work in general. Not only the employees, but the business itself, needed a vacation for efficiency, to avoid the condition of summer disorganization.

The vacation was set for the first two weeks in July, and notices were sent out for three months beforehand to the patrons of the firm, notices similar to the one I have quoted. Then, on the first Saturday in July, the office work was laid down just as usual on a Saturday evening, with the sole difference that it lay for fifteen days before being taken up again just as usual on a Monday morning. Most of the vacations carried full pay. The rule is, a day for a month of service; otherwise, vacation is without pay. Only one or two persons are left in the office to take care of necessary business. But in the several years of the Efficiency Vacation in this firm, Mr. Watt, the president, says there has been only one complaint from patrons during the vacation season.

Last summer the total of orders received for future delivery in the New York office of the Elliott-Fisher Company during the holidays was greater than during any other two weeks of the summer. However, the total of business at this time is, of course, smaller than the average, and this has led to the one change which has been made in the plan. It made the showing for July very poor to have half of the month wasted so far as business activity was concerned; also, the employees preferred, almost unanimously, to have their rest a bit later in the summer; so the vacation was changed to the last week of July and the first week of August. This year it is from July 25th to August 10th.

The vacation weeks themselves have not been directly productive of dividends to the stockholders of the company; that would be absurd to maintain. But the business as a whole has shown in the last two years a noteworthy improvement for the three summer months. This is certainly due to the increased organization and effectiveness of the work of the season, when the respite from work is given all at once, with a minimum of confusion.

OTHER VACATIONS IN FACTORIES

A good many factories, such as the Brown & Sharpe Manufacturing Company, of Providence, R. I., close down for two weeks during the summer season for an Efficiency Vacation. At this time cleaning is done, repairs are made, new machinery is installed, and the old is generally overhauled and put into condition. The Elliott-Fisher Company once utilized this time to move its

le outfit of machinery to another it, so that when the employees re-ied to work they simply took up their s in different surroundings and went vorking with no delay.

Iany factories have a slack season at e part of the year, when the work auto-ically stops, or nearly so, with results h the same as those obtained by the ciency Vacation. Shoe factories close two weeks twice during the year, at the of their semi-annual "runs" of work. thing factories clean and re-organize r workrooms while the workers are idle, ting for the new styles that will again designers to planning and sewing hines to humming.

SING THE OFFICE FOR TWO WEEKS

ut in straight office work the Efficient ation can be managed as well as in ories. For example, the Alexander nilton Institute sends out notices to patrons very similar to the one quoted he beginning of this article, and shuts hop for two weeks in late summer. All office employees go off to take their , except one or two responsible persons are left to handle any money that come in and to answer any urgent rs or requests for information.

y giving the vacation to all at once, continuity of the office, its first essen-is preserved. The work simply can-be laid down in segments, to be taken by unaccustomed hands or to be ne-ted for a period, and continue efficient. he Baker-Vawter Company, of Benton bor, Mich., has adopted the Effi-cy Vacation among its sales force. firm employs about one hundred smen. Of these, during the last two s, eighty-five or ninety have taken r vacations during the first half of July, the remaining few the next two weeks. some businesses, the giving of vaca-s in any quantity, at any stated time, is impossibility. The great mass of ine work in many banks prevents any t number of employees from taking r rest at any one time, and the per-age whose vacations fall in July or ust is often very small indeed. On other hand, Wanamaker's, Altman's, and Lord & Taylor's, three of the foremost department stores in New York, have gone far in the other direction. They decided this year to close their stores for the entire day, on Saturdays, in July and August.

HOLDING THE QUITTERS

The problem of keeping employees after the vacation time has been dealt with by the Stetson Hat Manufacturing Company. This firm found that frequently a man would work half a year — that is, long enough to earn a vacation with pay. He would go off and take his vacation with pay, and then would not come back to work after it was over. The trouble and waste of breaking in new employees during the summer months was very burdensome. But the Stetson Company decided to offer a bonus to those of its men who would remain in their employ for a full calendar year. If a man came in on the first of January or before, stayed through the summer (with vacation, of course) and then stayed on till Christmas, he was given, as a mark of appreciation on the part of the firm, a bonus for a Christmas gift. These bonuses have increased progressively from year to year, and the system has been most satisfactory in its results.

A group of employees in a large flour mill of the Middle West maintain a summer camp at which they all spend their vacation. This thing is done for the employees by the Pierce Undertaking Company of Los Angeles, Cal., who send their men in relays throughout the season to a beautiful spot high up in the mountains.

In the National Cash Register Company, the length of the vacation an employee gets is contingent on his punctuality through the year. One year's service entitles him to one week's holiday. In addition, if the employee has been late, but not absent, or absent, but not late, he gets three days more. If he has been neither late nor absent, he gets two weeks in all. A great many of the employees earn the two weeks' rest.

In these ways and many others, the vacation time, instead of being a direct waste to the business, may be made into a constructive force.

THE AMERICAN CREATOR OF THE ALUMINUM AGE

CHARLES MARTIN HALL, INDUSTRIAL CHEMIST, WHOSE RESEARCHES TRANSFORMED ALUMINUM FROM A PRECIOUS METAL TO ONE OF COMMON COMMERCIAL USE — HOW IT IS REPLACING STEEL AND COPPER AND WHY IT MAY GIVE THE NAME TO A NEW ERA IN INDUSTRIAL ARTS

BY

JOHN M. OSKISON

IT IS not boasting in these days to say that we are capable of creating a new metallic "Age" within two generations — almost within one lifetime. We have done it; and the credit goes to the workers in industrial laboratories. Consider the story of Charles Martin Hall, a modest, patient investigator, and of his work with aluminum.

Aluminum is the most abundant metal. Deville, an early French experimenter, declared that every clay bank is a deposit of the metallic earth from which it is extracted; last year, four states — Alabama, Arkansas, Georgia, and Tennessee — contributed the 210,000 tons of bauxite (the ore from which aluminum is taken) that was mined for manufacture in this country.

THE HISTORY OF ALUMINUM

AS TOLD BY ITS PRICE

1855	$90.00 a lb
1857	22.50 " "
1862	12.00 " "
1886	12.00 " "
1888	5.00 " "
1914	.18 " "

Knowledge of how to use the metal is growing. In 1908, our production was 11 million pounds, and the latest figures show that last year we imported 27 million pounds to supplement a home production of 65,500,000 pounds. It is cheap enough already to have become a real competitor of copper and iron; and to-day manufacturing facilities in the United States are being increased at a rate which foretells such a vast development in the use of aluminum within a few years as will make the present output seem insignificant.

Three and a half years ago, when Charles Martin Hall received from the chemists of America the Perkin medal, the presentation was made by Dr. C. F. Chandler, of Columbia University. Full of years and honors himself, Dr. Chandler reviewed his own connection with the history of aluminum and explained his life-long interest in it. In one way, Dr. Chandler's experience covers the whole history of the period in which the metal has been known.

As a student of 18, in 1854, young Chandler heard Wöhler's account of his discovery of aluminum in 1827. Wöhler's lecture opened to the vision of the student a new element, a still-fresh miracle of the scientist's laboratory, its possibilities all unrealized. Later, as teacher and investigator himself, Dr. Chandler followed the patient, intelligent work of Mr. Hall, and saw it flower into an actual new industrial epoch.

A hundred years before young Chandler heard Wöhler's lecture, a chemist named Margraf found a peculiar chemical earth in alum. He thought it contained a metal, and he called it "alumina." His researches, however, brought to light nothing more than the name. Half a century later, in 1807, Sir Humphry Davy tried reducing this "alumina," and succeeded in producing an alloy of metals — but still the metal aluminum was unborn, and it was twenty years later that

Wöhler tackled the problem. With potassium, Wöhler was enabled to reduce aluminum chloride to a gray metallic powder. The first bit of this metal he ever saw was shown to young Chandler in 1855 by a chemist named Rose; so precious was it that a pound was worth $90.

ALUMINUM AS JEWELRY

Louis Napoleon became interested in the story of the gray powder and the possibilities of its conversion into a new sort of metal. He subsidized Henri St. Claire Deville, who under took to establish a factory for the production of aluminum. That was in 1854. Up to 1888, Deville's plant continued to turn out the metal and its manufactures, reaching a maximum production of 5,000 pounds a year. This was practically all converted into small fancy articles — rings, brooches, statuettes, thimbles, souvenir bars, and wire coils. In Paris, in 1869, Dr. Chandler paid $9 for a four-ounce basket that was made of aluminum.

Between Deville and Hall in the history of the development of the aluminum industry came Hamilton Y. Castner, who studied under Dr. Chandler. Castner's discovery was that caustic soda and iron carbide could be used in making sodium instead of the far more expensive carbonate of soda and carbon employed by Deville. Still, as three pounds of sodium were required, in the reducing process, for the production of one pound of aluminum, and as Castner's sodium cost 25 cents a pound, he never reached a solution of the problem of making the metal cheap enough for general use. By 1889, however, he was turning out 500 pounds a day and selling it for $4 a pound.

Very briefly, that was Dr. Chandler's story of the development of aluminum up to 1886, when Charles Martin Hall, a young American graduate of Oberlin College, discovered an entirely new process for making the metal.

ITS MARVELOUS PROPERTIES

Through the minds of alert industrial chemists, of course, had been running the stories of this wonderful new metal whose specific gravity was only two and a half times that of water, which when hammered and rolled became as hard as iron and lighter than glass, and which did not rust or tarnish. Dr. Chandler, for one, had been actively interested in it since 1854, and many other experimenters were working at it.

Charles Hall's father, who was a minister, had in his library a book he had studied — a battered text book of chemistry published in 1841. This came into his son's hands while he was in school. What that author knew about aluminum was contained in this paragraph:

"The metal may be obtained by heating chloride of aluminum with potassium in a covered platinum or porcelain crucible and dissolving out the salt with water. As thus prepared, it is a gray powder similar to platinum, but when rubbed in a mortar exhibits a distinctly metallic lustre. Fuses at a higher temperature than cast iron, and in this state is a conductor of electricity but a non-conductor when cold."

In school, the boy studied chemistry, but when he entered Oberlin College he did not specialize in that science. His course was the usual classical course that is elected by most students. He was one of the serious-minded students of the college who "ate up his work;" yet beyond the boundaries of his own class work his mind went searching for new problems. He read with unusual interest Deville's statement that though every clay bank was a mine of aluminum, the metal was as costly as silver. Surely, here was something worth looking into.

A HINT FROM AN OLD TEXT BOOK

Graduated in the class of 1885, young Hall found his mind full of scientific curiosity concerning aluminum; from Professor Jewett he secured permission to use the college laboratory during the summer, and he hunted up his father's old text book again. He re-read what it said about aluminum; perhaps he got a hint from the book's statement that when fused (that is, heated until it is in a liquid state) the metal is a conductor of electricity. Anyhow, his experiments during that summer and fall were concerned with the effect of electricity on the metallic earth

"alumina." Fascinated by the problem, the young man went after the secret of cheap aluminum in earnest.

First of all, he found that he needed a cheap, practicable method of reducing the metallic earth "alumina" to a fluid condition so that an electric current would flow through it. He wanted an anhydrous solvent (my dictionary says that anhydrous means "destitute of water") — something he could mix with "alumina" and get a fused mass at a reasonable temperature. The summer and fall ran into winter, and the young experimenter still sought a suitable solvent.

In the following February, of 1886, he found it; it was cryolite, a mineral used in the manufacture of soda and glass. Cryolite fused readily at a low temperature, and when fused it absorbed more than 25 per cent. of its own weight of the white powder of "alumina" while still remaining clear and limpid. As young Hall dropped "alumina" into the fused bath of cryolite, he was delighted to see that it dissolved like sugar or salt in boiling water.

A THEORY THAT WORKED

He had made his big discovery; and he was just past the age of twenty-two! Through that clear, limpid bath of fused cryolite and "alumina" he was ready to shoot an electric current and precipitate aluminum. From Professor Jewett he borrowed a battery and made the first trial. It failed, and he reasoned that it failed because he had used a clay crucible; when he substituted a carbon-lined crucible, he got some globules of aluminum; his theory, a revolutionary one among the workers in that field, had been proved sound scientifically.

The task of adapting his discovery commercially remained — a far longer, if not more formidable, job than he had already finished. It was in this further working out of the process and the transformation of the laboratory miracle into an industrial commonplace that Mr. Hall's mettle was tested.

He was very young; his chemical training had been scant — and men with capital were skeptical. Technical difficulties arose. He found that the carbon poles which carried the electric current into the fused mass burned up quickly. Platinum poles resisted the heat successfully, but Mr. Hall knew that this material was far too expensive to use. With certain adjustments of the fused mixture, however, he was able to use cheaper copper poles. It seemed a solution, yet after a year of experimenting he abandoned the mixture as an unprofitable one.

For a long time it seemed that the Hall electrolytic process was fated to join the long list of inventions which are ideal in theory but are damned as impractical. Of course, Mr. Hall believed that the difficulties could be overcome, but he had indifferent luck in making others agree with him. For three years, approximately, he had to fight the handicaps with little encouragement.

JUDGE TAFT'S SUPPORTING DECISION

Mr. Hall's discovery was made in February, 1886; in July, he applied for a patent on his process; the basic patent was granted in April, 1889. Later, additional patents, perfecting the process, were granted to him. He did not escape the fate of most American inventors, though he kept his patent application in the Patent Office nearly three years; his patents were attacked, and he had to fight them through the courts. In the United States Circuit Court for the Northern District of Ohio his claims were sustained by Judge William H. Taft. In his decision Judge Taft wrote:

"Hall was a pioneer, and is entitled to the advantages which that fact gives him in the patent laws."

After applying for his basic patent, Mr. Hall set out to secure financial backing. Through his brother, he succeeded in interesting some Boston men. They stuck to him until October, 1886, and then quit because they could not see any profitable future for the process. In Cleveland, Mr. Hall sought the president of one of the biggest chemical manufacturing companies in the country. This man showed a real interest in the process; but from what Mr. Hall has said, his interest was

too strictly financial. At Lockport, N. Y., was an electric smelting concern which was turning out aluminum bronze. Mr. Hall made a deal by which this company agreed to try his process. For a year — from July, 1887, to July, 1888 — the company gave Mr. Hall and his process opportunity to make good. But in that year the process did not take advantage of the opportunity. Mr. Hall by this time thought that he had found out the reason for the failure. He explained to the men at Lockport that if he enlarged the "bath" (which contained the fused mixture through which the electric current passed) and thus moved the poles of his current farther apart, he could probably prevent the "clogging" of the bath with the worthless black precipitate which had appeared. They listened, but were unconvinced; they said good-bye to him and his process.

ALUMINUM JEWELRY

ALMOST THE ONLY USE OF THE METAL FORTY-FIVE YEARS AGO, WHEN IT WAS WORTH $12 A POUND

With the help of his brother, Mr. Hall set out to find new backing.

"Let's go to Pittsburg," said the brother. "There's a city that is looking for new ideas." It was true that Pittsburg in 1888 was the nursery of fresh industrial impulses as well as the home of vigorous giants of manufacture. The capitalists of Pittsburg were used to seeing bread that was cast upon the waters of industrial invention come back well buttered.

Within a surprisingly short time after going to Pittsburg, Mr. Hall got the backing he sought. The Pittsburg Reduction Company was formed, and a small plant was secured at Kensington, near that city. By November of 1888 it was turning out fifty pounds a day of

AN ALUMINUM AIRSHIP

THE FRAME OF THE HUGE ZEPPELIN DIRIGIBLE BALLOONS CAN BE MADE OF ALUMINUM BECAUSE THE COST OF THE METAL IS NOW ONLY 18 CENTS A POUND

WHEN ALUMINUM WAS A PRECIOUS METAL

THE LITTLE BASKET, WHICH WEIGHS ONLY FOUR OUNCES, COST $9 WHEN PROF. C. F. CHANDLER, OF COLUMBIA UNIVERSITY, BOUGHT IT IN PARIS FORTY-FIVE YEARS AGO

aluminum, and the company was selling it for $2 a pound. In the plant at Kensington, using an enlarged "bath," the old trouble with clogging disappeared — just as Mr. Hall had predicted it would. At the plant at Kensington, too, the inventor made the pleasing discovery which he had predicted, that no external heat was needed to keep the bath fused — the electric current passing through the mixture was sufficient.

Beginning in a factory with fifty available horse-power and with a daily production of fifty pounds, the company grew rapidly. In 1890, Castner, who was using his caustic soda and iron carbide process in England to turn out 500 pounds a day for $4 a pound, retired from the field; Deville had quit two years before.

Twenty-five years covers the history of the Hall process; his company has grown rapidly and steadily, for the bankers in Pittsburg who got behind him never lost faith and furnished the money for more and bigger plants. At the time the Perkin medal was given him, Mr. Hall came from his home at Niagara Falls, where he has lived and worked ever since the Falls were harnessed for the generation of electric power; his company was the first user of that power. At the beginning of 1911, the company's three factories were using 140,000 horse-power of electric current and turning out 40,000,000 pounds of aluminum a year; the price had gone down to 22 cents a pound. Mr. Hall and his associates are the biggest users of electricity among the great electro-chemical works of the world.

A STATUETTE MADE OF ALUMINUM

If this were strictly the story of the discovery and development of the electrolytic process for the manufacture of

NOW THAT ALUMINUM IS PRODUCED CHEAPLY

THE CRANK CASES, TRANSMISSION CASES, AND WATER PIPES OF THESE AUTOMOBILE POWER PLANTS ARE MADE OF THE METAL BECAUSE IT LESSENS DEAD WEIGHT

aluminum, the name of a brilliant Frenchman, Paul T. L. Héroult, would be coupled throughout with that of Mr. Hall. In Europe, Mr. Hall is all but unknown, and M. Héroult, who died last May in Paris, was recognized as the discoverer of the

MAKING ALUMINUM CRANK CASES FOR AUTOMOBILES

ONE AUTOMOBILE FACTORY NOW USES MORE ALUMINUM EVERY YEAR THAN THE WHOLE WORLD PRODUCED IN THAT TIME TEN YEARS AGO

process. The case of Hall and Héroult is one of the authentic cases of simultaneous discovery.

Recall that Mr. Hall got his definite results in February, 1886. In April, 1886, M. Héroult attracted the attention of the chemical world by discovering, in France, the identical process. He, too, was a brilliant young worker, for he was born in the same year as Mr. Hall. About the time Mr. Hall's company was getting started at Pittsburg, M. Héroult came to America to take charge of the exploitation of a process with various steel and metal companies. Much of his active career was identified with this country.

M. Héroult was present at the meeting of chemists at which Mr. Hall was honored, and he made a little speech. It was different from the sort of speech you would expect to hear on such an occasion from an expert in chemistry. In it he told, with great charm and humor, something about his own discovery of the electrolytic process for aluminum.

MR. CHARLES M. HALL

FROM A PHOTOGRAPH THAT WAS TAKEN ABOUT THE TIME HE INVENTED THE ELECTRICAL PROCESS OF EXTRACTING PURE ALUMINUM FROM CLAY WHICH HAS MADE POSSIBLE THE COMMERCIAL USE OF THE METAL

He recalled that at the callow age when life seems hardly worth living, when the yearnings of Kipling's soldier in "Mandalay" to be shipped "somewheres East of Suez" strike a young man as an imperative call — that is, about the age of twenty — M. Héroult and his very dear friend and comrade (later his partner in his big manufacturing enterprise) found themselves in the streets of Paris "dead broke." Restlessly, they had pursued pleasure — also, with no regard for cost. Everything pawnable had gone to the money lenders, and the question was where to raise more francs.

"Think, my friend!" urged young Héroult; and after a decent interval the friend produced an inspiration: His aunt owned a souvenir bar of aluminum, six inches long, which had come from the works of Deville. It ought to be very valuable; he would "borrow" it, and no doubt the pawnbroker would advance them a reasonable sum on it. Excellent!

They secured the bar of aluminum and proferred it to the pawnbroker. Without touching it, he asked:

"Is that silver?"

"No," they told him in chorus, "it's better—aluminum!"

"Aluminum—what's that?" asked the pawnbroker, and picked it up. "Why, it's hollow!"

"No, no," objected the two young spendthrifts, "it's aluminum, and it's worth $12 a pound." At that, the pawnbroker weighed the bar in his hand and regarded it long and prayerfully.

"Well," he said finally, "I'll give you 40 cents on it."

Said M. Héroult to the assembled chemists who listened to his little talk: "On a hot summer day it was better than nothing! We took the money with the firm intention of redeeming the stick, which we never did. Maybe that is one of the reasons why, later on, I had to make good and replace it."

In Europe, M. Héroult certainly did make good with his process. Within three years it was generally adopted over there; and the production of aluminum in Europe has increased even more rapidly

in this country. In 1911, it had to 100,000,000 pounds a year, and arket price had dropped to 20 cents und.

. Héroult concluded his little talk a prophecy: within ten or fifteen s, he said, aluminum will be used as nsively as copper; perhaps it will fixed its name upon a new age of l — as iron named the Iron Age.

PIONEERS IN THE DEVELOPMENT OF ALUMINUM

EFT: F. WÖHLER, WHO, IN 1827, BY CHEMICAL MEANS FIRST OBTAINED ALUMINUM IN A METALLIC STATE. T: HAMILTON Y. CASTNER, AN AMERICAN WHO DISCOVERED A COMPARATIVELY CHEAP CHEMICAL METHOD RODUCING ALUMINUM

way back in the mists of time began centuries-long Stone Age; then men ned to fashion implements from an of tin and copper, and the bronze began its long reign; there came the Age to take its toll of the centuries give its marvelous impetus to civiliza- — but we begin to suspect that we about exhausted the possibilities e Iron Age. We are outgrowing iron won't do; for one thing, it won't or the equipment of our air-craft — aluminum will do.

s an alloy, aluminum is creeping more and more into the substance of steel; it is replacing copper as a conductor of electricity; it is used to tame refractory oxides and reduce them to carbon-free metals; it is a welding agent as Dr. Hans Goldschmidt employs it in his aluminothermic process. Dr. Goldschmidt now supplies the world with chromium, manganese, cobalt, and alloys of iron with chromium, vanadium, molybdenum, and titanium, all carbon free. Into the world's millions of automobiles and thousands of airships, aluminum will enter wherever strength and lightness must be combined; and in the kitchen (no, this isn't an anti-climax!) it is replacing iron and tin.

For America, Charles Martin Hall — a round-headed, modest, quiet, boyish-looking worker — opened the door upon the new age of aluminum. To Europe, Paul Héroult revealed it. There is credit enough in the achievement for both; and until Héroult died they shared it like gallant rivals.

THE STRUGGLE FOR THE CUP

PHOTOGRAPHS OF "RESOLUTE," "VANITIE," AND "DEFIANCE," THAT WERE BUILT TO CONTEND FOR THE POSITION OF DEFENDER, AND OF "SHAMROCK IV," THE CHALLENGER, IN TRIAL RACES AND EXPERIMENTAL RUNS PREPARING FOR THE AMERICA'S CUP RACES OFF SANDY HOOK NEXT MONTH

BY

EDWIN LEVICK

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THE START

"RESOLUTE" LEADING "VANITIE" OVER THE STARTING LINE ON THE SECOND DAY OF THE TRIALS IN WHICH THE AMERICAN BOATS RACED TO DETERMINE WHICH SHOULD DEFEND THE CUP

Copyright by Edwin Levick, New York

THE FINISH

"RESOLUTE" LEADING "VANITIE" BY SEVERAL SECONDS IN ONE OF THE TRIAL RACES. THE CUP RACES ARE RUN ON THREE DAYS: ON THE FIRST AND THIRD, FIFTEEN MILES TO WINDWARD OR LEEWARD AND RETURN; ON THE SECOND OVER A 30-MILE TRIANGULAR COURSE

Copyright by Edwin Levick, New York

"RESOLUTE"

Each of the American yac
is 74 feet, 9 inches long at
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permit any length from 6
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race 75-foot boats

"VANITIE"

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Copyright by Edwin Levick, New York

"SHAMROCK IV"

With which Sir Thomas Lipton will try for the fourth time to capture the America's Cup. *Shamrock IV* was designed by Mr. Charles E. Nicholson and was built at Gosport, England. This is the thirteenth English yacht to try (all unsuccessfully) for the cup since 1851

Photographs copyrighted by Edwin Levick, New York

ON THE DECK OF "RESOLUTE"

WHICH IS OWNED BY A SYNDICATE OF MEMBERS OF THE NEW YORK YACHT CLUB, HEADED BY MR. CORNELIUS VANDERBILT. "RESOLUTE" WAS DESIGNED BY MR. NATHANIEL G. HERRESHOFF

"DEFIANCE"

It carries more sail than either of the other American contestants. *Defiance* was designed by Mr. George Owen and was built for a syndicate that is headed by Mr. George M. Pynchon, of New York, and Mr. E. Walter Clark, of Philadelphia

Photographs copyrighted by Edwin Levick, New York

ON THE DECK OF "VANITIE"

WHICH IS OWNED BY MR. ALEXANDER S. COCHRAN, OF NEW YORK, AND WAS DESIGNED BY MR. WILLIAM GARDNER. IT IS LONGER *OVER ALL* THAN "RESOLUTE" OR "DEFIANCE"

PRACTICAL WORK IN FARMING
FOR BOYS AND YOUNG MEN WHO ALTERNATE WORK IN THE COTTON MILLS AND IN THE SCHOOL

A WHOLE-HEARTED HALF-TIME SCHOOL

AND THE REV. J. A. BALDWIN, OF CHARLOTTE, N. C., A MISSIONARY TO A MILLION FORGOTTEN AMERICANS, WHO DIRECTS IT—YOUNG MEN AND WOMEN WHO ARE GETTING AN EDUCATION IN BOOKS AND IN THE PRACTICAL ARTS OF LIVING WHILE THEY EARN THEIR WAY IN THE WORLD

BY

WALTER A. DYER

THIS is the story of a remarkable man, the Rev. J. A. Baldwin, of North Carolina; of a unique school which he founded and is now conducting; and of the events through which his work became merged with that of another remarkable man, Mr. Charles R. Towson, of New York. But first I must tell something of a million white Americans whose dire need called forth the efforts which produced the events in this history.

Slavery hampered the old school system in the South. The War and Reconstruction all but disrupted it. The result was that the generation which grew up in the South after the War was an uneducated generation. The census of 1910 showed that in North Carolina alone there were 122,189 grown white people who could neither read nor write. In the whole South there are probably a million of these people that the schools have neglected. The mill towns that sprang up all over the Carolinas and in Georgia and Alabama provided rather better schools than the surrounding country. The mill village children probably attended school as much as did the country children, but the children who worked in the mills and who thereby lacked sufficient schooling were more noticeable than the youngsters who were growing up in ignorance on

arms. The mills, therefore, can be ed with providing some schooling, heir practice of working girls and of school age seemed to stand in the of further progress.

en worse than their illiteracy was the ing incompetence of these people. were denied the advantage of any of vocational ng. "The cost ite illiteracy to outh," said Dr. . Dyer, of Van- lt University, enormous, be- it shuts out a more pro- ve life a great of workers are capable of ighest efficien- n production, have every es- al characteris- f industrial ency save the ique of educa-

REV. J. A. BALDWIN

WHOSE INSPIRING WORK TO LIFT "THE FORGOTTEN MEN OF THE SOUTH" OFFERS A NEW HOPE TO A MILLION AMERICANS

meet this need arose in the its great in- tual leaders — Curry, Alderman, er, Hill, Aycock, and Claxton. These saw with prophetic vision that the 's rebuilding depended upon the fit- of the masses — "the forgotten men e South" — to take an active part in During the '80's and '90's these men t for public, democratic education — hey won their fight. The end is not the South needs better schools and r teachers and laws for compulsory tion; but there is no longer any ion of that need, and the South is ding for its own. It is probably ng progress in education faster than other part of the country.

this educational movement was ng started there came an industrial ening of the New South which has both a help and a hindrance to the tional movement.

young Methodist clergyman during days saw all this, saw the need of forgotten whites of the Piedmont-Carolina section of the South. Half a million of these had gone to work in the eight hundred cotton mills, and another half million was in other factories and on the farms. The cry of these million souls sounded in his ears, and the words of Carlyle, "That there should one man die ignorant who had capacity for knowledge, this I call a tragedy!"

J. A. Baldwin was reared on a farm in Richmond County. He borrowed money with which to go to college, and he taught school for four years after his graduation to pay it back. It was then his purpose to enter a theological seminary and become a foreign missionary, but the illness of a sister prevented, and while he was waiting for her to recover he took the pastorate of a small mission church in a mill district at Charlotte, N. C.

This was in 1898. Conditions in the mill district were distressing. The mill was running night and day and children were working. Pastoral work was difficult and ineffectual because the people moved so often. One removal a year was a fair average for a mill family; one man whom the pastor knew moved thirteen times in one year. The people were very religious but unstable, and though Mr. Baldwin believed thoroughly in the value and helpfulness of evangelistic revivals, of which they were very fond, he was convinced that these were not sufficient, and that it was very important that they have some intellectual training.

In coöperation with Mr. D. A. Tompkins, of the Atherton Mill at Charlotte, Mr. Baldwin attempted welfare work on a small scale. He began the work of getting the mill people to make gardens, and the

TEACHING THE GIRLS

FIELD WORK AT THE SOUTHERN INDUSTRIAL INSTITUTE

AN INCALCULABLY VALUABLE TRAINING FOR BOYS WHOSE FOREFATHERS FOR GENERATIONS DRAINED THE VITALITY OF THE SOIL AND GOT ONLY POOR CROPS BY INEFFICIENT METHODS OF CULTIVATION

offering of prizes. The improvement this made in their condition was encouraging, but the deeper needs of the people so worked upon him that he abandoned his plan to become a foreign missionary, and at the close of his pastorate he asked for another charge in a mill community. He was sent to Gastonia, N. C., a typical mill town.

Meanwhile conditions had been improving; the statewide educational programme was being put into operation and reforms were going on among the mills. There was to be a chance for the children of "the forgotten men" to go to school. But the change had come too late for thousands of young

EWIFERY

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A LESSON IN DEEP PLOWING

AFTER PLOWING WITH TWO, AND SOMETIMES FOUR, BIG MULES THE BOYS WILL NOT BE CONTENT TO GO BACK HOME AND SCRATCH THE SOIL WITH A SMALL PLOW AND ONE "PLUG" MULE

GARDEN TRUCK THAT HELPS PAY FOR SCHOOLING

THE SOUTHERN INDUSTRIAL INSTITUTE IS ONLY THREE MILES FROM CHARLOTTE, N. C., WHERE 40,000 PEOPLE ARE A READY MARKET FOR THE FARM PRODUCTS THAT ARE RAISED BY ITS STUDENTS

must be low, and means must be provided for the students to earn their way, the girls doing the housework and the boys raising their own provisions or working part time in the mills.

With this idea in mind he visited Booker T. Washington's school for Negroes. There he found the blacks receiving very much the sort of training he wished to give. He secured promises of aid from several influential friends, particularly Mr. E. A. Smith, then president of the Chadwick Mill, at Charlotte. Mr. Baldwin completed his plans of organization and went north to study industrial and technical schools for a few months.

Returning to Charlotte in the spring of 1902, he got a site for the school — the money for the land was secured partly by loans and partly by contributions — a farm of 278½ acres near the Chadwick Mill, about three and a half miles from the centre of Charlotte.

The school was named the Piedmont

MORNING EXERCISE AT THE INSTITUTE

PROBABLY FEW SCHOOLS GIVE SO COMPLETELY ROUNDED A LIFE TO THEIR STUDENTS AS THIS SCHOOL FOR YOUNG MEN AND WOMEN OF THE PIEDMONT-CAROLINA REGION WHO HAVE TO WORK IN THE FIELDS AND MILLS TO EARN THE LEISURE FOR STUDY IN BOOKS

trial School and was chartered by gislature as a stock company. Then the task of raising money for a 16-frame building. Mr. Baldwin made ısuccessful tour of several towns in tate, seeking funds. He was so cessful that at Durham his money out. But before he left he received mail a check for $10 from a friend. that time on the money came in. ok new courage, and in a few weeks d raised the necessary amount.

: building was completed two days : Christmas, 1903, and on January 4, the school was opened with eleven ıts. They had no desks, but held ; in the dining room.

Baldwin saw three alternatives these young people whom he wanted p: either they remained in ignorance from school, or somebody paid their bills, or they got an opportunity ırk their way through. The total se for each pupil was about $150 a But this would be prohibitive for who needed the training most, so rice was made $100, and the other ı the absence of an endowment, was ed from friends.

: $100 must be paid by the student in cash or work. In many cases the :harged in cash would as effectually he door of opportunity as though it ten times as much. The students t to work on a strictly business basis. count is kept of the number of hours tudent works, and the rate per hour ermined by the efficiency of the In this way every possible in-e is given for faithful and efficient This plan greatly increases the of the bookkeeper, but that is a matter compared with its ad-ges. It was Mr. Baldwin's idea emunerative work on the farm and otton mill done by students working me would be nearly or quite sufficient ' their necessary expenses in school. ned easy to believe that farm work be done so, but most people shook heads or laughed outright when he of running a mill that way.

in the meantime the Hoskins Cot-lill was built near the school, and an opportunity was given for testing the scheme in a small way. At various times from four to twelve students have thus been at work in pairs. The half-day-about and the week-about plans have both been used in these tests.

WEEK-ABOUT WORK AND STUDY

Each plan has its advantages and its disadvantages, but experience seems to favor the former for children and the latter for grown young people. The important thing is that the plan works. Mill work is more difficult in this, that greater care must be taken in pairing off the student-workers, as they must run the same machines. Then, too, the machinery is costly and must be run continuously, so if one student drops out for any reason his place must be filled promptly. On the other hand, the remuneration is considerably greater in the mill than on the farm. A fairly good worker on the farm can make during the two weeks of the month from $10 to $14 without board, and in the mill one can make from $16 to $20.

Perhaps no man in America has given so much time and thought to the problems of part-time work as Mr. Baldwin has. He has felt that the working out of practicable methods by which young people might be enabled to help themselves, and the creation of a sympathetic and intelligent public sentiment, are much more important than the building up of a school and the sending out of young people trained in head, hand, and heart, deeply as he feels the need of that. He believes that part-time work is just in its beginnings, and that there are untold possibilities of usefulness in it. He would prefer that the law should permit children from 12 to 16 years to go to school half a day and work half a day rather than that the law should keep children out of the mill altogether until they are 14, and then permit them to work all the time. He has been steadily seeking a remedy for the evils of continuous labor on automatic machinery which requires almost no thinking or planning on the part of the operative after the process has once been learned, and as a result of his experience he recently

suggested the following scheme, which he believes may be profitably adopted by a good many mills:

A PLAN FOR PART-TIME LABOR

Instead of working ten hours a day as at present, have two sets of operatives, each working eight hours, one to begin at 4 o'clock in the morning and work till noon; the other to work from noon till 8 o'clock in the evening. This would give each set a full night's sleep and a full half day outside. During this half day they might work small truck farms, run a coöperative dairy, raise hogs, cattle, and chickens, etc., thus giving to them a variety of work, the encouragement of having a work of their own, and the mental development that would come from the thought and planning necessary to make it a success. Though this plan would be impracticable in a large city it is not inherently impossible in the South, for many mills are surrounded by plenty of available land that is suitable for these purposes, and most of the mill workers have been away from the farm only a few years.

For more than a generation half-time work has existed in England. There it has been developed for children between the ages of 10 and 13, an age at which in most states we keep children out of the mill altogether. Though the arrangements for them in English schools have not been very satisfactory, the system at least gives good reason to believe that under more favorable conditions highly gratifying results would be obtained.

During the last ten years a great many part-time plans have been attempted in various parts of this country. Perhaps none has been more successful than the Textile Industrial Institute in Spartanburg, S. C. The founder, Rev. D. E. Camak, had a vision not unlike that of Mr. Baldwin, in whose school he spent the year 1910, returning to Spartanburg to establish a school of his own. He has been fortunate in locating near a small mill, the managers of which have welcomed his plan and are coöperating with him in the work. All his students — he has about fifty — work on the week-about plan, and his success is now well assured.

In Mr. Baldwin's school the work has been varied — teaching the ordinary English branches, emphasizing the dignity of labor, holding up high ideals of character and service, working out in a small way and often under discouraging conditions social, educational, and industrial problems of far-reaching importance. Gradually people came to have more and more faith in his plan, and from time to time some strong man entered into coöperation with the school. This was particularly true of Mr. Arthur J. Draper, who became largely interested in the Chadwick-Hoskins Company. Since 1906 Mr. Draper has been the strongest friend and supporter of the Institute.

But the work done seemed insignificant in proportion to that which needed to be done. More money was required, more buildings, a plan to reach in some more effective way the hundreds of mill communities in the South. Mr. Baldwin is a deeply religious man — he prayed.

ENTER THE Y. M. C. A.

Now enter the second leading actor in this drama — directed, if you will, by Providence.

Six hundred miles from Charlotte, in New York — Mr. Charles R. Towson, head of the Industrial Department of the Young Men's Christian Association for the North American continent, was devoting his remarkable talents to the task of bringing the well known advantages of the Y. M. C. A. to thousands of men and boys in mills and shops, lumber camps, mines, and railroads all over the country. Inevitably his attention was drawn to the cotton mills and "the forgotten men of the South."

Y. M. C. A. work in the South was no new thing. It was active a decade before the Civil War. But the great cotton mill industry, with its two billion dollars of investment and its thousands of operatives, had been largely overlooked. The first Y. M. C. A. in a cotton mill community was started at the Monaghan Mills, Greenville, S. C., in 1904.

This was looked upon as an experiment at first, but Mr. Towson believed in it. It has succeeded, and now in a dozen

large mill centres in the Carolinas the Association is serving industrial workers.

But the Y. M. C. A. workers have been for the most part Northern men, who could not hope to accomplish as much in this field as Southerners. Mr. Towson felt the need of some sort of training school that would fit Southern men — among others representatives of the "forgotten" class, for there are certain fields where they can be particularly effective — for this work. While on a trip through the South in 1907 he visited the Piedmont Industrial School. Here he discovered students eager to find some field for home missionary work among their people. For Mr. Baldwin had not sought to restrain their ambitions, but to direct the energies of each according to his natural bent and talents. Many of them were religious by nature and desired to become ministers or to take up some form of social service work. So Mr. Towson proposed to Mr. Baldwin that they combine forces and continue the school under the auspices of the Y. M. C. A.

The idea appealed to Mr. Baldwin. The Y. M. C. A. was non-sectarian, and an alliance with it offered wider opportunities for service. He was interested in general welfare work among the mills and had ceased to be content with his restricted local field. He still saw the need of the "forgotten million". Moreover, financial coöperation was offered, which he sorely needed.

A FOURFOLD PURPOSE

The facts were laid before the directors and stockholders of the school, and they accepted the plan. In January, 1908, the property was transferred to the International Committee of the Y. M. C. A., and the name of the school was changed to the Southern Industrial Institute. Mr. Baldwin was continued as its president and was also made an executive secretary of the Y. M. C. A. for the Southern industrial work.

The present purpose of the school is fourfold: first, to furnish elementary education and something of culture to young men and women who may lack financial resources and previous education, and, by means of a part-time system, to make it possible for students to earn their education as they progress. Second, to furnish practical training in the cotton mill business, agriculture, and home making. Third, to make the Institute a centre for welfare work among the mill communities of the Piedmont-Carolina district. Fourth, to discover and train leaders for the industrial Y. M. C. A. work of the South.

To-day the school is an industrial colony in which the students prepare for life by practising it — the boys alternately in classes and in the mills or on the farm, the girls alternately in classes and in the mills or in the kitchens or laundry of the school. In the mills and on the farm, with its 175 acres of truck garden and small grain and corn fields, the students are getting a very practical education, for they are shown the proper way to work. In their classes they receive sufficient book education to prepare them for college if they wish to go (six or eight do go every year); but the courses of all the students are not limited to the special subjects which prepare for college.

HOW THE INSTITUTE HAS SUCCEEDED

In addition to its regular enrolment of boarding pupils, the Institute had charge of the public grammar school in the Hoskins Mill Village until last year. This arrangement was made in 1905, when there were fifty pupils in a small building. Last year a special tax was levied and a new building erected, and the attendance has increased year by year until it now ranges from 200 to 300 pupils. The community had grown so that everybody concerned felt that it would be better for both the Institute and the community if the public school were managed separately. The friends of the Institute are justly proud that not a single vote was cast against the special tax. Scarcely could a more eloquent tribute be paid to the influence of the Institute in its own community, for usually the greater the poverty and ignorance, the more bitterly the people oppose a special tax for schools.

To what extent has the Institute thus far accomplished its purpose? About five hundred boarding students have

taken more or less complete courses in the school, and it has been of service in more limited degree to as many day pupils. These students who have gone forth to fields of useful service are the justification of the Institute's existence.

STORIES OF THE STUDENTS

For example, a few years ago a lad came to the school to take a term's work in arithmetic; he needed a working knowledge of fractions to help him in the mill. He became interested in getting an education and remained four years, working his way through. Gradually his vision broadened and he went on to a medical college, still working his way, except for some help from a brother-in-law. He will graduate this spring. Already an excellent position has been offered him, but he will probably decline it and go north for further study.

Another boy, who had had very little schooling, came to study arithmetic and remained at the school for two years. He returned to the mill and is now an overseer, making three or four times as much money as before. These two boys are illustrative of two broad types — those who go back to do better work at farm or mill, and those who graduate from the mills into other callings.

The achievement of the school's purpose as a community betterment centre is illustrated by the obvious improvement in conditions in the Chadwick-Hoskins mill village. Evidences are manifest of increasing prosperity and comfort, and of a growing taste for the beautiful. In this community of more than 1,500 people not a single police officer is needed, and the mill managers attribute to the influence of the Institute much of the high character of the community.

An indication of this popular spirit is the home gardens of the mill people, which have been encouraged by prizes presented by the mill managers. Of 120 families in the village, about 100 had vegetable gardens last year. Two or three years ago, a Government expert estimated the value of the products of the village gardens at $6,000 to $8,000. Flower gardening, too, has become popular. The roses of the village have become locally famous, and last fall the finest chrysanthemums that were grown in Charlotte were to be found in the yards of cotton mill operatives.

A POWERFUL FORCE FOR CIVILIZATION

In its capacity as headquarters for the Industrial Department of the Y. M. C. A. in the South, the Institute is much more than a local school. It is exerting a wide and powerful influence throughout the Piedmont-Carolina region as a welfare centre. The multiplication of Young Men's Christian Associations in the industrial South makes possible a large use of the experience, methods, publications, and workers of the Institute. Expert lecturers and teachers are sent out to other mill communities to discuss problems of personal and community health, education, and morals. Seventy-two mill villages were served in this way by the Institute last year.

This extension work for social service includes the promotion of vegetable and flower gardens in mill communities; popular stereopticon lectures on a variety of instructive subjects; night classes; the promotion of better hygienic conditions; and the introduction of practical, simple vocational training in small public schools in rural and mill communities.

Finally, the Institute is beginning to train Y. M. C. A. secretaries and directors and leaders for general welfare work throughout the industrial South. The demand for such leaders at present greatly exceeds the supply.

The Southern Industrial Institute is more than a school, more than a Y. M. C. A. headquarters. It is a force in the development of American democracy in the South.

TRADING PROFITS FOR BRAINS

THE UNITED STATES RUBBER COMPANY'S PRACTICE OF SHARING PROFITS WITH ITS EXECUTIVES TO BUILD UP A BUSINESS PATRIOTISM AMONG THE CONSTRUCTIVE THINKERS OF ITS VAST BUSINESS

BY

FREDERICK TODD

[*In the belief that among the various forms of profit sharing which are being tried in this country lies the tie that will bind employers and employees together, and thereby lessen the losses of labor conflicts and increase the efficiency of labor and management alike, the* WORLD'S WORK *will print descriptions of several of the profit sharing plans that are now in operation.* — THE EDITORS.]

"YOU can't buy the efficient loyalty of your employees with money," said a manufacturer who has a thousand men working for him, recently, when talking about different schemes of profit sharing. "When I see a man in my force who can help me run my business better, I make a friend of him. I find ways of letting him know that I'll throw everything his way that I can, leaving something for myself. But I have never thought much of this finessing with the whole payroll."

Very much in character with the same idea is the system of profit sharing which the United States Rubber Company has been trying for two years with much satisfaction to its executives. Of the 55,842 employees, the company offers the benefit of its system to about 1,200. It does not give them something for nothing. In the order of their ability, as measured by their salaries, all employees who make twenty-five dollars a week or more, excepting the chief executives, are invited to purchase the company's common stock on the following terms: the employee subscribes to a number of shares which can be purchased for from 10 to 20 per cent. of his salary. It is 10 per cent. in the case of $25 a week men; it is 20 per cent. with men who get $10,000 a year. Between the two the percentage grades up. The employee agrees to pay for the stock within a year, having regular instalments taken from his salary.

Immediately he subscribes, he receives from the company a check, which just about pays for half the cost of the stock he has subscribed for. Afterward, during five years, if the employee remains with the company, he receives enough, in regular dividends on the stock and in special profit sharing dividends of $3 a share, to reimburse him for all he paid out and a little more.

Without giving them the stock, the company helps certain of its employees to get it for a comparatively small initial outlay which they get back in a short time. Because this is stock upon which it pays regular dividends anyway, it is enabled to "throw something their way" at only part cost to itself. The whole scheme is evidently one to make friends of the employees who can help make the company's business run better.

But that only half tells the story. There is a bigger idea behind the rubber company's profit sharing system than merely getting a little better work from its men by "finessing with the payroll."

Men who are criticising the economics of "big business," like Mr. Redfield, Secretary of Commerce, Mr. Brandeis, Mr. Douglass, of St. Louis, and others, have begun to emphasize the difficulties in the management of great incorporated industries. They have said that mere bigness does not bring the economies that have been claimed for industrial consolidation. On the contrary, they assert that bigness reaches a limit of efficiency, beyond which

efficiency declines because very few executives have learned how to direct large armies of employees so as to get the most out of them. Some have gone so far as to say that criticism of labor, to-day, because of what is described as its disposition to do less and less work, might better take some notice of inefficient management.

The profit sharing system of the "Rubber Trust" is designed in part to meet this difficulty. It is devised to organize the efficiency of a managerial class of employees working under the command of the chief general executives of a big, highly diversified, and scattered industry, and directing the mass of routine workers and labor below it.

The rubber company's business offers unusual executive difficulties, because its activities are so various and so scattered. It makes and offers for sale such a range of different articles, made from one crude material, chiefly, that every man, woman, and child uses daily something which could be bought of it. It has 43 factories scattered over the eastern part of the United States and on the southern border of Canada. It grows rubber and gathers rubber and buys it in local markets all around the world's tropical belt. There are 12,000 natives and others cultivating its 40,000-acre plantation in Sumatra.

Then, when it gets the crude rubber to America, it sells some to rivals and refines and tempers the rest for its own use. Rubber is just rubber, of course, but it can be treated in ways that result in its coming out in several distinct "raw materials" for various kinds of manufactures. "Wild" rubber and plantation rubber also are different in constituency and texture. They are used separately for different kinds of articles and mixed for still others.

A VERY VARIOUS INDUSTRY

Going from one of the company's factories to another is really going from one industry to another, so radically different are the mechanical equipments, the goods manufactured, and the kinds of people at work. The 43,842 employees in America are men, women, boys, and girls of every type and nationality that works in American factories. The various occupations in the rubber industry require different grades of intelligence, physical strength, and special fitness. Probably no other one corporation has such a wide variety in its manufacturing industry.

Added to its manufacturing the company has an extensive sales organization. Some of the products — automobile tires, fountain pens, hot water bottles, rubber boots, mackintoshes, etc.— are for such entirely different lines of trade that the company must have distinct selling forces for them.

This whole industry is managed generally as one. The rubber supply goes to all. The financial arrangements for all are made together. Advertising is handled generally. For the departments of the business, a corps of men are always at work designing new articles and new styles.

A PLAN FOR EXECUTIVES ONLY

The gentleman who is at the head of the rubber company has an executive task something like that of the commander-in-chief of the Nation's military forces. The main office of the company is his capital. His brigades and naval squadrons are scattered over much territory. He has his military cabinet and many special officers near him. He directs the general campaign. The battles are fought at far distance. Between him and the firing line are a succession of major and minor officers. From the lieutenant-general down to the sergeants every man of them has his responsibility in the direction of the forces. There are differences in the bravery and intelligence and in the physical fitness of the private soldiers, but very little account is usually taken of that. The results of campaigns depend on the ability and the organization of the officers. The commander-in-chief knows much that is going on. In his general direction, he may require full information about an engagement in which a single company of men were employed. He may visit in person the camps of his forces. He may not only know the science of war, but the soldier's tactics. Still, the success of his campaign will not depend on these small attentions to detail. It will depend upon the intelligence he has used in organizing his officers, from top to bottom.

is these various officers, from cor- l up, in its widely scattered organiza- , that the rubber company is reaching its plan. If you should take the ‹ing forces of the United States Rubber ıpany and make a grand division at $25 a week line of salary, you would that you had automatically made a clean cut between those whose work ther wholly manual labor or routine tal activity requiring little initiative those who do the thinking that keeps industry going. The latter are what of the officers of the company calls : real producers." To the degree of ıbility, every man in this upper class mployees is a manager and on his ative and management depends some or little part of the prosperity of the oration as a whole.

HOW THE PLAN WORKS

ɔr the last three years, every one of e "real producers" has received a letter pril inviting him to purchase a certain ıber of shares of the common stock he company. The letter has been ed to him at his home and has come ı the president's office. The letter has ained the bonus and special dividends the company will pay to employees buy the stock, and the terms on :h he can pay by instalments. This , the stock was offered to employees 6o a share.

the employee is earning $25 a week, he this year invited to buy two shares. $120 which they cost is roughly 10 cent. of his yearly salary. He ar- ,ed to pay for them by having regular thly instalments in even amounts of less than $6 deducted from his pay ·lope. Immediately upon his sub- ıtion and the allotment of the stock im, he received from the New York ɛ of the company a check for $39, esenting a bonus of 3 per cent. of his ious year's salary. During the year, for the next four years, if he remains he company's employ he will have ited to him special "profit-sharing" lends of $3 a share. He will receive, ı the time of subscription till he parts his stock, the dividends regularly declared on the stock, now $6 a share. All these payments, so far as he can apply them to the $120 that he must pay in full within the year, he considered in making his arrangements for the instalments. This was all left freely to his judgment. He could use his $39 bonus check for whatever he might want and make his instalments bigger. Or he could endorse it right back to the company and fix his monthly payments accordingly. He is charged 5 per cent. interest on any amount he owes the company.

Just as soon as this year's payments on the $120 are completed, the stock will be turned over to him in fee simple.

It figures out that all the money that must be deducted from his own salary is $63, because the $39 bonus, the $12 of regular dividends on Rubber common stock, and the $6 in special employees' dividends will total $57 which the company will pay. And during 1915, 1916, 1917, and 1918 he will get back $18 a year in regular and special dividends, or $72 in cash. Altogether, for the $63 that he is to pay in instalments during 1914 he will receive the two shares of stock that is now paying regular dividends of $6 a share and $129 in cash from the company. It makes a pretty good investment of his money. And it really costs the company only $69 on the five years, inasmuch as the regular dividends on the stock it sells to the employee would have to be paid to some other holder if the employee did not receive them.

AN EASY ROAD TO INDEPENDENCE

Looking at it from the employees' point of view, it is an easy way to become a stockholder in the company, as the years go on. If it could be probable that the market price of the stock (which determines the price at which it is offered every year to employees) would remain the same for twenty-five years, and the dividends not become larger or smaller, the $25-a-week-man would find his income from regular and special dividends growing larger so rapidly that after four years he could more than pay for his stock, as he took it, with his surplus dividends. He could retire after twenty-five years, without having invested a cent of his regular

earnings. This is conjectural, of course, because market quotations and dividends are probably going to change.

But an employee with anything in him will not stop at his $25-a-week job. He will do his best to get into higher grades. The stock that the company helps him to every year amounts in value to about 10 per cent. of his salary. If he can get on so as to earn only a few hundred dollars a year more, he will get 11, 12, and higher percentages of the bigger salary in what, in the long run, amounts to free stock, as he advances in the company.

Now the $5,000 a year man: the company finances him to the ownership of fourteen shares of stock but does it in a little different way from that designed for men in lower grades. He is invited to take stock valued at about 16 per cent. of his salary, and the company presents him with a bonus of 5 per cent.

But he gets only three fifths of the bonus at once in cash. The other two fifths he receives in the form of a certificate entitling him to stock which will be delivered at the end of five years if he stays an employee. He will receive all regular dividends on this bonus stock in the meantime. All men earning $5,000 or more get this kind of bonus, three fifths cash and two fifths stock. That is, the division is made as nearly in that proportion as can be done without having any fractional shares. With a $5,000 a year man, who is expected to take enough stock to cost 16 per cent. of his salary, or $800, and the cash value of whose 5 per cent. bonus is $250, it works out that he subscribes for thirteen shares this year, and as two fifths of his bonus, $100, won't buy two shares, he actually receives $190 in cash and a certificate entitling him to only one share of the bonus stock.

THE $10,000 A YEAR MAN

A $10,000 a year man subscribes for 33 shares, which is roughly 20 per cent. of his salary. The money value of his bonus is $800, or 8 per cent. of his salary. This divides so as to bring him $500 in cash at once and a certificate for five shares of bonus stock, delivery deferred, but bringing him dividends regularly. From $10,000 to $17,000, the upper limit of the system, everybody shares numerically alike, with 33 shares to subscribe for, $500 in cash, and the 5 shares of deferred bonus stock. The chief executives have not included themselves in the operation of the plan.

From the $25 a week man, with his stock allotment measured by 10 per cent. of his salary, and his 3 per cent. bonus, to the $10,000 a year man, who subscribes to stock costing 20 per cent. of his salary and receives a bonus with a cash value of 9 per cent., the percentages rise by grades. But everywhere, excepting in half a dozen grades where it just happens differently because of the arithmetic of keeping to integral shares of stock, the employee, high or low, is financed by the company, after some outlay of his own, so that after five years he will have his stock and his money back, with a little more. Curiously, in the case of the lower grades, a little figuring shows that the employee will have his stock and, besides, almost exactly the amount of money he would have if he should put his instalments in a savings bank at 4 per cent.

The business of the profit sharing system is handled by men at the very top of the company. Operating officers are most active in its direct management — the men who have to handle the physical affairs of the industry. They know, as well as men can know in so large and scattered a force, the human nature that is a part of the equation in calculating the effects of such a system.

NO RED TAPE

No red tape is permitted. It is all businesslike, but every transaction with employees is conducted with all the courtesy and respect that is accorded to outsiders who happen to have business relations with the company. Every man's bonus is mailed to him direct. So are the regular dividends on the stock. For the sake of convenience only, the special dividends are credited on the books.

It is made plain to every man that he is perfectly free to manage his part of the profit sharing business to suit himself— so long as he acts in good faith and fairness.

ourse, the men who are looking after business for the company will not ıit anybody just to buy the stock, get bonus, and sell out. The company reserved full discretion in all details ıe handling of the profit sharing. Any loyee can be shut out. As an evidence s own good faith, the company apted trustees and every year has ed over to them all the stock that is for delivery at the end of five years any funds that become payable to loyees in the same way. No change ɔntrol or insolvency, even, can, thereimperil these. It does not even take : stock or special dividends if an emee quits or is shut out because of unming conduct. Forfeited stock and ey is placed in a pool, to be divided ng the remaining employees when the 's series closes. In case of death, an loyee's deferred stock and all extra lends for the remainder of the five s are paid to his estate immediately.

FREEDOM OF CHOICE

ıe men are even told that they need subscribe to the full amount of stock they are expected to take, in order to ve the full bonus presented by the pany. Any reasonable explanation, as sickness in the family, emergency nditures that make it difficult to up with payments, even the pure of a home, has been accepted. There been very few such requests at the of subscription; the difficulties usually lop later and are easily adjusted. this year's allotment, six men who disposed of stock bought under the previous offers applied to buy. Of se, the stock they had sold was all for and their own in fee simple. Per. some of them had no idea that such a l thing as selling their stock would to the attention of the very highest ers of the company. But it did. And received, every man of them, a courteletter direct from New York asking if would state the reason why the stock been sold.

ıy fair explanation was taken. A fine, ly frankness saved one man who y had no good excuse. The company merely wished to find out if there was any one who was not acting fairly with the company. Any one who was not would simply be told that he couldn't buy this year's stock.

Only one man among those who applied for short allotments and those who had sold their stock was found to have been figuring sharply to make a little more than other employees. He was a man of good salary. He was known personally at the New York office. All he had done was to ask for just so many shares as the free gift from the company would pay for without his having to invest any money of his own. The officers of the company were sorry to discover that he was that kind of an employee.

A CLOSER PERSONAL TOUCH

The officers say that a by-product of their profit sharing, that they had little idea of at the beginning, has been the close personal touch it gives with the employees of the "executive class." It was precisely to find what may be called the "organized" way to bring back into the relations between employer and employed, in the case of an immense corporation, the old personal element that the rubber company's plan was devised.

Two years of the system have already brought results. The general statement is made that the employees like the profit sharing and are noticeably more loyal and active in its interests. That sounds general. There are some specific things to prove it. For years, it has been the policy of the United States Rubber Company to unify its business. It wants to drop the old established trade names of products manufactured by subsidiaries. It has tried to get its employees to talk of the "United States Rubber Company" more and of the subsidiary company names less. It had been a slow process till the profit sharing came. Now the men have suddenly taken to using the company name in every-day talk.

If every one of the 1,200 employees who benefit is not working harder, hundreds are. Even men who do not benefit have improved and are trying to get into the profit sharing class. Superintendents and

heads of departments are continually asking for the advancement of employees nowadays. At first it was a plea that such-and-such a man was too good to be getting only $1,200 when a certain other man was earning $1,300. The company could not advance everybody at once. It resulted in throwing the lime-light on the $1,300 man. This, as well as the desire to get up a grade because the bonus grows so rapidly, put more energy into him. The new system brought pressure upon bosses and superintendents through the insistence of ambitious men to get ahead. They were compelled to weed out slow-going fellows whom they had good-naturedly let remain as fixtures. They cannot keep an incompetent man in a job now — his job is needed for somebody who is willing to work hard in it. The records of the company show a noteworthy increase in dismissals and in readjustments of salaries upward and downward.

SOME PRACTICAL RESULTS

Also, there has been a decrease in resignations of good men to get better salaries elsewhere. They come frequently to officers of the company to talk it over.

"I want to stay here," says one, "I like this company. But those people have offered me $500 more and in justice to my family I don't see how I can refuse it."

"In justice to your family look at this," replies his adviser. And he gives him some figures with a pencil and pad. For a $5,000 man a $500 increase elsewhere proves no bait at all. He will be getting it in his rubber company dividends alone within a very few years, to say nothing of the stock which he will own outright. He remains with the rubber company. Cases where men's salaries must be increased in order to keep them are much rarer than they used to be. The money saved to the company in this way is considerable. The company prefers to let its salary increases represent the reward of increased efficiency resulting from the stimulation of the profit sharing.

The employees like the system. Practically every one who was eligible applied for stock this year. One of the trustees for the deferred stock made a trip to every factory and store, early in the year, to see for himself how the plan was working. Everywhere men told him that the profit sharing had given them their first savings. To be holders of corporation stock with dividends coming is a matter of pride with them.

The rubber company is not only anxious that the employees shall be directly interested as stockholders in the rubber company itself. It is the desire of the company that they shall catch the investment spirit. It will not be surprising if, in a few years, when the dividends for the accumulation of the company's own stock by an employee becomes large enough to take from him the necessity of putting his own money in at all, some plan for encouraging diversified outside investments by the employees will be advanced.

A STABLE BODY OF EXECUTIVES

The future efforts are summarized thus by one of the men who had most to do with working out the rubber company's plan:

"The people who come after us here as executive heads of the company will be the ones to enjoy the full benefits of this system if it shall continue. Its results will be progressive. Think of these 1,200 employees after a dozen years. They will all be substantial property owners. Everybody knows what owning property does in developing responsibility in people. They will have a direct interest in the company. An insult to it will be an insult to them. They will be a capable lot. Disloyal or incapable people won't be permitted to remain with them. It will be a great advantage to have the company's minor subordinates all recruited from such material."

The whole purpose of the rubber company's system is to organize managerial efficiency, and there is a big significance behind that purpose.

TO HIRE MEN BY MACHINERY

EMARKABLE RESULTS OF MR. O. V. FRY'S PSYCHOLOGICAL TESTS OF GINEERS OF THE PENNSYLVANIA RAILROAD, WHICH SEEM TO PROVE THAT IT IS POSSIBLE TO FORETELL WHETHER OR NOT A MAN CAN LEARN TO DO THAT KIND OF WORK EFFECTIVELY — A DEVICE TO PREVENT MISTAKES IN CHOOSING A VOCATION

BY

ARNO DOSCH

AN inconspicuous car on a railroad ing at Altoona, Pa., the value of 'chology in picking a man for a job ; recently been successfully estab- ıed. Tried locomotive engineers rought before Mr. O. V. Fry, a ogist, who had never seen any of efore, and, after a few minutes, he e to give as complete an account of ness for their peculiar tasks as the tendent of the railroad who had some of them for twenty years. ıose qualifications were pretty well ood were selected for the test, as ıe of the test, rather than the ef- of the engineers, was on trial.

ıose who saw the tests, particularly ;ineers who were placed under its scrutiny, it must have appeared like ıl of the black art, as the tests were y the use of weird changing lights lving disks and the rapid touching ons. Yet it was a modern device, ention of the psychologist. He had for the particular purpose of test- ıotive engineers. It was able to to the thousandth of a second the nd certainty with which the chang- ıts reacted upon the minds of the rs, and it made possible surpris- curate estimates of their reliability, , behavior in sudden emergency, ir general fitness for the responsi- f running trains.

locomotive engineers who were were men whose strength and sses were already on record. They so known personally to Mr. G. W. on, general superintendent of the lvania Railroad, who had not arrived at his position without becoming a first rate judge of men. He knew what those engineers could be counted upon to do, and he had long experience on which to base his belief. Still, he said, in making a report of the experiments, that the machine made the differentiation in the qualities of the men better than he could.

Mr. Creighton also played a trick on Mr. Fry. One of the engineers looked to be an entirely different man once he had washed his face and put on his street clothes. So Mr. Creighton sent him into the test-car one day just as he came in from a run in a greasy jumper and with dirt smeared across his face, and several days later he sent him in again fresh from the barber and in his street clothes. To Mr. Fry and the other men assisting him in the test he was another person. They were at first completely deceived. But as soon as they began making their deductions from his reactions to the test they discovered he had reacted to the impressions on the two days with a speed and accuracy that were identical. Then, knowing that no two men are exactly alike, Mr. Fry asked if he had not been put to a test before and found that he had. Meanwhile, however, he had rated the engineer's efficiency and had necessarily given him the same percentage that he had showed in the previous test.

This test at Altoona was, of course, by no means the first application of psychology to practical ends. Professor Hugo Münsterberg, of Harvard University, has made a number of interesting experiments in this country. He carried on a successful series of experiments to de-

termine the qualifications of street car motormen in New York, and he made another equally successful test of telephone operators in Boston. But he was not checked up as Mr. Fry was. He was a recognized authority on psychology and his findings were accepted without question. Mr. Fry was in a much less authoritative position. He is a grocer in Altoona. He has strong leanings toward psychotechnical research and had previously shown a good deal of ability in that direction, but it was only natural for him to be regarded at best as an amateur. The idea of a psychological grocer might also lend itself to the humorous. Mr. Creighton, however, does not appear to have let the incongruity deter him, and it was at his request that Mr. Fry made the tests. He had in mind the purpose of founding a regular system for the psychological examination of applicants for railroad positions. This he has not yet carried out, but he has made the first definite move in that direction by proving the value of Mr. Fry's efforts.

The accuracy of the tests at Altoona is their most important result, as it holds out the hope that psychology will be used on a large scale in the selection of vocations. But it is hardly less interesting that Mr. Fry found it necessary to develop a machine peculiarly adapted to the testing of railroad engineers. It was his original purpose to copy or change slightly the machine that Professor Münsterberg had devised for the selection of street car motormen, but he found it would not do. Professor Münsterberg's machine was made to show the quickness of motormen in controlling their cars in streets where there is a constantly interfering traffic. The fitness of the man for the job in this case is largely dependent upon his promptness in stopping and starting his car. He must be able to judge the speed of half a dozen different kinds of interfering vehicles and, at the same time, not become so engrossed that he will lose so much as a tenth of a second in stopping his car if a child chances to wander out upon the track. He must also respond promptly to the conductor's signals. The qualifications of the railroad engineer are quite different. The right of way is practically unobstructed and stops are infrequent. The chief requirements of a locomotive engineer are quickness and accuracy in reading signals and coolness under the stress of sudden emergency. Entirely different machines were required for the two tests.

Professor Münsterberg's machine was a small model of a busy street with various mechanical devices representing dangers and signals of all kinds. It was a very clever machine, and experienced motormen who operated it said it gave them the exact sensations they experienced in running their cars. By the turning of a handle which moved a piece of glass, representing the car, past the various dangers and emergencies, the motormen undergoing the test showed their fitness just as well as they would have shown it to Professor Münsterberg if he had stood beside them on their car-platforms and had been provided with the recording devices that the machine possessed. It was better than an actual test because it was able to record nerve reactions with absolute accuracy.

But when Mr. Fry studied this machine, he found it would not do for his purpose. He had to develop something quite different. He was on new ground, but he took a cue from Professor Münsterberg's experiments with telephone operators and did not attempt to reproduce actual conditions. He confined himself to the testing of psychological reactions, and found that this was sufficient. This is of considerable importance, because Professor Münsterberg has expressed the fear that the application of psychology will lead to the multiplication of mechanical devices to a hopeless variety. Mr. Fry's device is an effort in the direction of simplifying and standardizing psychotechnical apparatus. Just how useful it may prove in testing the adaptability of men to other kinds of work is yet to be seen.

A MACHINE THAT REVEALS THE MIND

The story of the tests can be most easily told by describing this machine. The apparatus from which the man undergoing the tests derives his impressions is, essentially, simply a polished disk a foot in

diameter upon which appear two rings of colored light — one ring inside the other. The outer ring is eight inches in diameter, but the band of light itself is only one inch broad. The inner ring is only four inches in diameter, but its band of light is one and a half inches broad. The light of the inner circle, in other words, is more conspicuous. The operator can vary the color of these rings at will. The outer ring he can make appear as white, red, yellow, amber, green, blue, or purple—approximately the range of the spectrum. The inner ring he can make appear as red, green, or white — the standard railroad signal colors.

The speed and accuracy with which the engineers saw and remembered the lights in the inner circle as they were manipulated by Mr. Fry showed their efficiency, and it speaks well for the men selected that in a group of seventeen the average of efficiency was 92 per cent. Each one as he was tested was seated facing the disk with a key-board handy to his fingers. The keys were for recording red, white, and green, and probably those three familiar colors had never been presented to them in such a bewildering and unexpected number of ways. But whatever their reaction was to them, as shown by the touching of the three keys, was recorded for time and accuracy.

The most important part of the apparatus is the recording device. It has seven magnet-controlled pens which register the whole process on paper, where it can be examined at leisure and figured out to a mathematical certainty. One pen connects with the clock and records the time. Three pens indicate when the man who is operating the machine turns on the red, white, and green lights in the inner circle on the disk. The three others show the reaction of these colors in the man who is undergoing the test. They show to a thousandth of a second when he touches the three buttons in front of him.

The apparatus requires three men to operate it, and its use involves a good deal of mechanical detail that is not necessary to the understanding of the machine. The principal point about it is the certainty with which it records the reaction in the individual.

There are four parts to the test, and from these, combined with a close scrutiny of the individual under action, the results are obtained. It is all based on color, but not, however, for the reason one would naturally infer. Mr. Fry confined himself to color because, as he says, locomotive engineers always consider color first. In the twilight, for example, when an engineer might read signals either by the position of the semaphore or by the color it displays, he sees the color first.

THE FOUR PSYCHOLOGICAL TESTS

In the first part of the test various combinations of the three signal colors are shown in the inner circle on the disk, as red and green at the same time, or white and red. The engineer who was undergoing the test was required to register on his keyboard the more restrictive of the colors that he saw — red being the most restrictive signal, green the next, and white the least restrictive. Thus, if white and green appeared, the engineer should register green. This is called the elimination test.

The memory test which follows is a simple matter. Three, four, five colors are flashed in order and, when the operator says "Record," the man he is testing indicates the order in which his memory records their appearance by touching the corresponding keys in front of him.

Of the two remaining tests it is hard to say which is the more important. The man who makes a good showing in both of them has proved his qualifications for running trains. The first is a straight test of reaction. The disk is set in motion, the speed changing constantly at the caprice of the operator. Meanwhile the lights are flashed on and off. The subject of the test is required to touch his three buttons as the lights appear.

To a man who is not accustomed to using his hands at mechanical work the results of this test are likely to be poor. The nervous system is not able to react fast enough. The two fatal tendencies are to put down colors in the wrong order or when they do not appear at all. This might be called the test of the "man of his hands." If he cannot make a pretty

fair showing in this test he has no right to be a locomotive engineer.

QUICK WORK IN JUDGING COLORS

The last test shows Mr. Fry's cleverness as an experimental psychologist. As every one knows who has ridden in an engine cab, when it swings into a crowded terminal there is such an elaborate display of signals that no layman can possibly understand them. But the man at the throttle watches for his own signal and responds promptly to it. Otherwise the great modern terminals would be scenes of constant confusion. To be able to pick out colors, then, is highly important. I am not making any reference here, of course, to color blindness, for a man who is color blind is never allowed to become an engineer at all. This test is to show his quickness in picking out colors.

The possibilities of the disk are here used in their fulness. First, the outer circle of lights is placed in operation, with the colors constantly changing in a very confusing manner. Then, unexpectedly, colors flash on and off in the inner circle. The subject of the test must record with his buttons when and in what order the colors show in the inner circle.

THE TEST OF CHARACTER

To make the test even more trying, at some time when the engineer is straining his attention to keep up with the shifting colors, the operator flashes red, unexpectedly calling out "white," and one of the other men answers him "white." If the subject is not pretty sure of himself, in spite of himself and before he can control his own actions his finger presses the white button. Then, before he has time to recover from the momentary confusion, the operator flashes white, calls "white" and is promptly answered "white." It is all done very quickly and is a marvelous test in action. An engineer who keeps his head through it and records both promptly and correctly can be counted on in any emergency that may arise.

During the entire test nothing that passes through the subject's mind in relation to the colors fails to be recorded. The test is absolute and final. But here is an interesting angle to it. Some of the best engineers did not come up to expectations, and this is a reflection neither on them nor on the machine. If they had come as applicants they might have been refused a job, but they had the character to overcome their defects. This shows that character must be taken into consideration. Mr. Fry confined himself to reading character in the faces of the men as they sat under his observation. With younger men, applicants for positions, character would not show so plainly on their faces.

ONE LIMITATION OF THE TEST

As the purpose of Mr. Creighton in making the test was to find an effective way of using psychology in the choosing of applicants, rather than testing the men already in service, this question of character is yet to be settled. It is doubtful whether the psychologist examining applicants will ever be able to say, "This is a good man, in every way fitted for the job." He can eliminate many who are not fitted for the work, whose unfitness can be shown only by psychological tests. As for those he passes he will need a finer test for character than any that has been devised, or he will have to leave it to experience. The great service of psychology is in keeping square pegs out of the round holes. Some of the round pegs that fit in the holes may develop weaknesses of character.

During the tests Mr. Fry found out a number of things for himself. "One of the most interesting things to me," he said of the test, "was the consistent way men reacted again and again to the same tests. I had one engineer before me on six different days and the differences in his reactions from one day to another could be shown only in one hundredths of seconds.

"The engineers, I was glad to find, considered the test effective. One of them compared the machine to the appearance of the road when rounding a curve just before entering a station. Picking out the lights on the disk was to them no more difficult than selecting their own signals from the confusion before them.

"We all expected before we made the test that the quickest reaction would be on the color red. Instead, it was on white.

The average of tests showed a reaction on white quicker by $\frac{186}{1000}$ of a second."

Here is a sample report made by Mr. Fry after a test of an engineer named as "C", who was given an efficiency rate of 92 per cent:

"A very slow man. Always safe, but has no record for speed. A little slow at grasping details but, once he has them, he will remember them readily. Rather combative, of fair executive ability, but his speed, or rather lack of speed, is, in this case, too much of an asset. This man is possibly very good at slow, sure work, but he will surely cause delay where speed is the requisite. The man in test letter 'B' will accomplish the same work in less time and with the same element of safety."

In a broad, general way, after understanding the machine, you can grasp how Mr. Fry came to these deductions. The actual record of the man's tests, if not too voluminous to print here, would make this even plainer, but after examining the record myself I had to confess there was a gulf of reasoning I could not safely cross. Speed and accuracy, of course, are shown very plainly. Memory is also susceptible of exact record. Combativeness and executive ability might, or might not, show. When I questioned Mr. Fry on these points he admitted there was a gulf of deductive reasoning, but he felt that he knew how to cross it. However, the latitude is not as wide here as it might appear. Taking the list of tests, he ran over them for points of this kind. In one case he spoke of a man as being only average good and likely to make mistakes under ordinary circumstances. In an emergency he thinks this man will be excellent. This is the reasoning by which he arrived at the conclusion:

THE EMERGENCY MAN

In the test this engineer made a run of mistakes and then a run of correct answers. This showed him to be excitable. But when the record showed that he did better under the stress of the more difficult tests, it was plain he was an emergency man. In another case, as speed and confusion increased, the engineer's mistakes increased out of proportion. Obviously he lost his head in an emergency. He could not think quickly.

Mr. Fry said of one man that he was affected by reading of wrecks and might be positively dangerous on the road after a fatal accident. I asked him where he got that deduction, and he explained that the engineer in taking the test always became confused and made a series of mistakes immediately after making one mistake. The consciousness and memory of the one mistake threw him off his balance.

Just how much deductions of this kind are worth depends upon the reasoning power of the psychologist who is making the test. But there is no question at all about the value of the obvious deductions. For example, in that last difficult test, if a man records the appearance of the lights correctly, or anywhere near correctly, considering the speed and confusion, and the interference of the operator himself, he shows that he has a reaction sufficiently sure to make an engineer of him. If he is also quick at it he is a man fit to run express trains.

The man who watched these tests most eagerly was Mr. Creighton. As the general superintendent of a railroad he must be able to judge men. Evidently he has come to the conclusion that ordinary observation is insufficient, although he was plainly pleased to find his own judgment vindicated by the psychological tests. But he feels the need of a better test, and he sees that it lies in psychology. He is trying to establish a system of psychological tests for applicants. He does not purpose to test the men who are already in his employ. He feels that he knows them pretty well already, and the test of the engineers shows that his observation is good. At the same time he has undoubtedly frequently found it necessary to get rid of men who were unfit for their jobs. This is a painful task. No one likes to discharge a man who is doing his best. These unfit men would never have been hired if a psychological test had been used on them, as they would have revealed their unfitness. That is the service which psychology hopes to do for all forms of industry.

THE MARCH OF THE CITIES

SEATTLE MAKING A PROFIT FROM THE DISPOSAL OF GARBAGE

MOST American cities have considered the disposal of garbage a dead loss. That it was possible to earn a profit from garbage disposal seemed out of the question. Yet, within the last year, Seattle, Wash., has demonstrated that a city can make — not lose — one fourth of a million dollars from this source.

About a year ago, Dr. James E. Crichton, who was then Commissioner of Health of Seattle, hit upon a plan that has since been carried through with remarkable success. The daily production of garbage in Seattle is more than 400 tons; and, before the adoption of Dr. Crichton's plan, this garbage had been collected from every point in the city and carted to the incinerators, there to be destroyed. The great expense of cartage had forced the city to erect several incinerators in the very heart of the best residential sections of the town.

At the same time much of the low-lying land of the town was unfit for habitation. Dr. Crichton's idea was the "sanitary fill." Choosing a piece of swampy land on the outskirts of the city, he directed that all garbage be dumped upon one corner of the property. Working out from this pile, the garbage was then spread out to a uniform depth of three feet, until the pile had been quite removed. Over the three foot stratum an antiseptic spray, composed of crude carbolic acid, resin, and caustic soda, was applied, thus killing all eggs or larvæ of flies, mosquitoes, and any other insects that might there find a favorable breeding ground. The spray, however, did not exterminate the bacteria. Thus, day after day, the waste was spread and sprayed until the tract was covered.

The second step in the process was to cover the whole mass of garbage with very porous earth, coarse sand, or, best of all, crushed clinker and ashes that allowed the buried material to be flooded with the greatest possible amount of air.

The admission of air aided and forwarded the disintegration of the garbage by the stimulation of bacterial action and, to a lesser extent, by oxygenation. Much moisture and warmth and the shielding from the direct rays of the sun excited the necessary action of the bacteria; the moisture being supplied either naturally or artificially in a drought, and the warmth being furnished by the constant chemical change proceeding within the mass.

To the chemical and bacterial action was added the efficacious medium of oxygenation. A peculiar method of collection of waste was employed as an auxiliary to this process: Boxes, cans, barrel staves, bottles, straw, and paper were scattered throughout the garbage, thus providing plenty of space for the circulation of air. A mass of garbage would have proved too compact to admit of any material amount of oxidation; but under this method the process was so rapid that at the end of three months even the largest tin cans had completely disappeared. This was proved by the sinking of a shaft twelve feet deep right in the middle of the waste; for this experiment proved that not only had all animal and vegetable matter returned to its earthy components, but that even the strongest iron hoops and nails had vanished.

Over the whole tract grass seed was then sowed, so that the new acreage betrayed no evidence of its previous condition.

Within the year the land so saved, or made, has been greatly enhanced in value: and the incinerators, with their costly running and construction expenses, have been practically dismantled.

The work can be carried on upon a much smaller scale and still furnish a handsome profit to the municipality employing it. Already Aberdeen and Hoquiam, Wash. — both centres of less than fifteen thousand population — have abandoned their projects for the construction of incinerators and have adopted Dr. Crichton's method.

MAN AND HIS MACHINES

THE electrically-lighted fountain pen was designed principally for use by miners in keeping records, but it has also been used to advantage in dictographic and secret service work.

The small electric bulb is protected by a metal cover and is mounted on a circular prong which can be fitted over various sizes of fountain pens. A silk-covered wire connects the bulb with a small pocket-type battery. The light that the bulb gives is reflected directly upon the point of the pen.

ELECTRIC LIFTING-DOCK

ONE of the large concerns that build motorboats on the Great Lakes is equipped with an ingenious electric lifting-dock which will accommodate boats of any length up to 120 feet. It is the only dock of its kind ever constructed, and was rather expensive to build, but the ease with which it handles boats without possibility of straining them has made it a practical investment.

A 15-horsepower electric motor does the work. The power is transmitted by two line shafts to twenty screws that are placed in indentions on the sides of the retaining walls. The dock is 100 feet long, 20 feet wide, and 14 feet deep. Ten I-beams, that are lifted and lowered by the twenty screws, carry a track which is provided with three separate trucks. These trucks may be so spaced that they reduce the strain on the boat when it is being lifted, and on them a boat may be run directly into the shop or from the shop to the water.

A DOCK THAT LIFTS BOATS BY ELECTRICITY

RAISING *THEM OUT OF THE* WATER QUICKLY AND CHEAPLY FOR REPAIRS

RESUSCITATION CAGE FOR MINE CANARIES

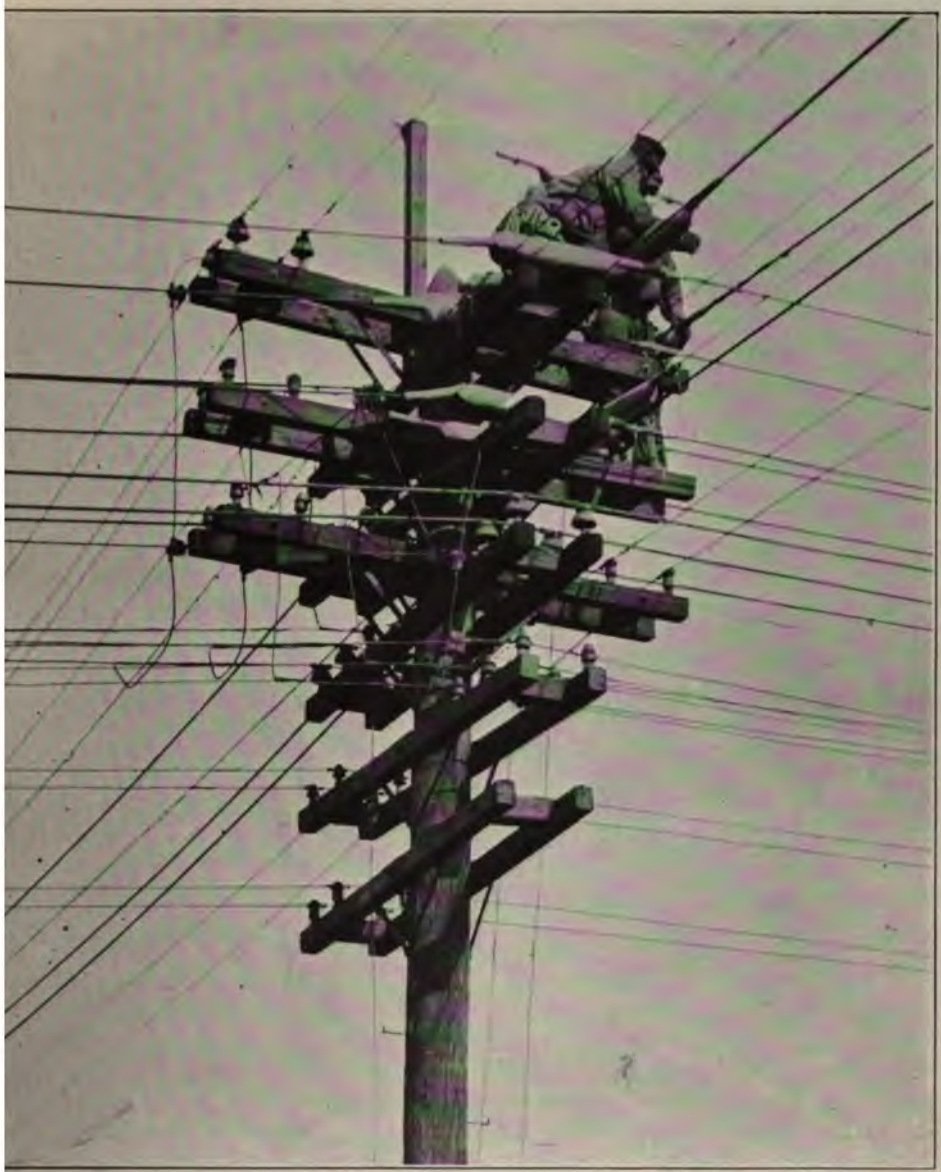
CANARIES and mice are often used by the men entering a mine after an explosion or fire. These little animals, being more sensitive than man to carbon monoxid in the atmosphere, will give quick indication of the presence of this deadly and odorless gas.

A CAGE FULL OF OXYGEN
TO REVIVE CANARIES THAT ARE OVERCOME BY GAS IN COAL MINES

Usually, in the past, the canaries or mice have been taken into the mine in ordinary cages, but, since the use of a canary or mouse so carried is entirely lost if it is once rendered unconscious and cannot be quickly taken to the surface or to a part of the mine where the air is fresh, a special cage has been designed which can be made air-tight, and which is provided with a supply of oxygen. If the canary or mouse has not been exposed to too deadly an atmosphere, the closing of the cage and the flow of oxygen will result in an immediate revival. Excess pressure of the oxygen upon the canary is prevented by means of the escape vent that is located at the top of the cage near one of the rear corners.

The small oxygen cylinder also serves as a handle for the carrying of the cage.

A PNEUMATIC BUFFER
THAT STOPS CARS FROM RUNNING OFF THE END OF THE TRACK ON SIDINGS AND AT RAILROAD TERMINALS



SAFE IN THE MIDST OF ARTIFICIAL LIGHTNING
THE LINEMEN ARE PROTECTED FROM HIGH CURRENTS BY RUBBER SHIELDS

NEUMATIC CAR BUFFER THAT SLIDES

HE distinctive characteristic of this pneumatic car buffer, in comparison with the ordinary rail-umper, is that it is not stationary. ıttached to a section of inverted ed rail 106 feet long, with tapered The whole contrivance simply rests track rails. When a train runs on to this rail section and hits the buffer, the air cushion absorbs the initial shock and the whole apparatus slides until the train's momentum is overcome by the friction of sliding rails with track rails.

Should a train run "wild" into a terminal station that is equipped with this buffer, it would shove the buffer back on the platform, with the weight of the engine and tender resting on the sliding friction rails.

A DIME-IN-THE-SLOT PARCEL CHECK ROOM
THAT SAVES TIME AND TIPS IN THE STATIONS OF A RAILROAD THAT RUNS OUT OF CHICAGO

RUBBER SHIELDS PROTECT LINEMEN

DOING repair work in a maze of electric wires at the top of a pole is ordinarily a dangerous task unless the current is turned off. Thousands of tests, however, under actual working conditions, have shown that the ingenious wire shields that are shown in the illustration on page 475 make it fairly safe for men to work on high tension lines without shutting off the current.

These shields, which can be applied to wires and cross arms in a large variety of positions, are made of rubber, and are so shaped that when a shield is in place no "live" part of the circuit is within the danger zone of the lineman. In placing a shield around the wire the lineman grips it by rubber that are att the outside so shield is betw hands and t The shield f the insulator as over the w hard rubbe slotted, with a ing sufficient to admit th serves to cla shield securely wire. It is sa the shields o carrying load excess of 10,0 Each shield jected to a su test of 30,0 before it is all leave the fact

COIN-CON LED PAR LOCKE

AUTOM coin-co parcel lockers have stalled in all tions of one great railroad systems that run Chicago. These locker cabinets are all steel, are made in thre and they contain eight, twelve, or lockers apiece.

The person who wishes to check suitcase, or parcel walks up to the selects a locker that has a key lock, which shows that it is vacan the door, places the baggage closes the door, drops a ten-cent the slot, and turns the key to th and withdraws it. The key, w numbered to correspond with the c ment, is carried away by the pers uses the compartment. When thi inserted in the lock for the remova baggage it cannot again be wit until another coin is inserted in by the next user of the compart

AN ELECTRICAL SUBURB

IN WILDWOOD, a suburb of Toledo, O., electricity is used exclusively for cooking and general domestic purposes. In this suburb, which is being developed by a real estate company, electricity is sold at a flat rate of $3.50 a month for a consumption of 100 kilowatt hours.

The illustration shows a typical kitchen in Wildwood and the type of stove that is used. This stove is constructed on the principle of the fireless-cooker. The current is turned on automatically at the desired hour by means of the clock attachment and is automatically tripped off when the desired heat is obtained. This arrangement permits the housewife to prepare a six-o'clock dinner in the morning, take luncheon downtown, and, if she wishes, to attend a matinee or make social calls in the afternoon. On returning home she will find the dinner cooked, without any excess consumption of electricity.

WHERE DINNER COOKS ITSELF

THE AUTOMATIC ELECTRIC RANGE CAN BE SET TO HEAT AT ANY TEMPERATURE FOR ANY LENGTH OF TIME

"SHOOTING" CEMENT MORTAR

THE cement gun, a device for "shooting," under pressure, a coating of cement mortar on to brick, concrete, wood, steel, and like construction surfaces, is being used for many new and interesting kinds of work. One of the important tasks it has had to perform was the cementing together of the stones in the piers of a Spanish aqueduct. In making the original mortar for these piers the cement was poor in quality, and as a result all the filling was washed away. It became necessary to tie the piers up by means of cables to keep them from falling. Then the cement gun was used to "shoot" cement between the stones to bind them together.

The gun is operated by compressed air, furnished by a compressor which is a separate unit of the outfit. The cement mortar, which has been previously mixed dry, is thrown into the receiving hopper at the top of the gun, compressed air is admitted, the weight of the material causes a valve in the bottom of this hopper to open, the material drops into the lower hopper, and then the lower valve is closed. A feed wheel at the bottom of this hopper discharges measured quantities of material into a stream of compressed air which

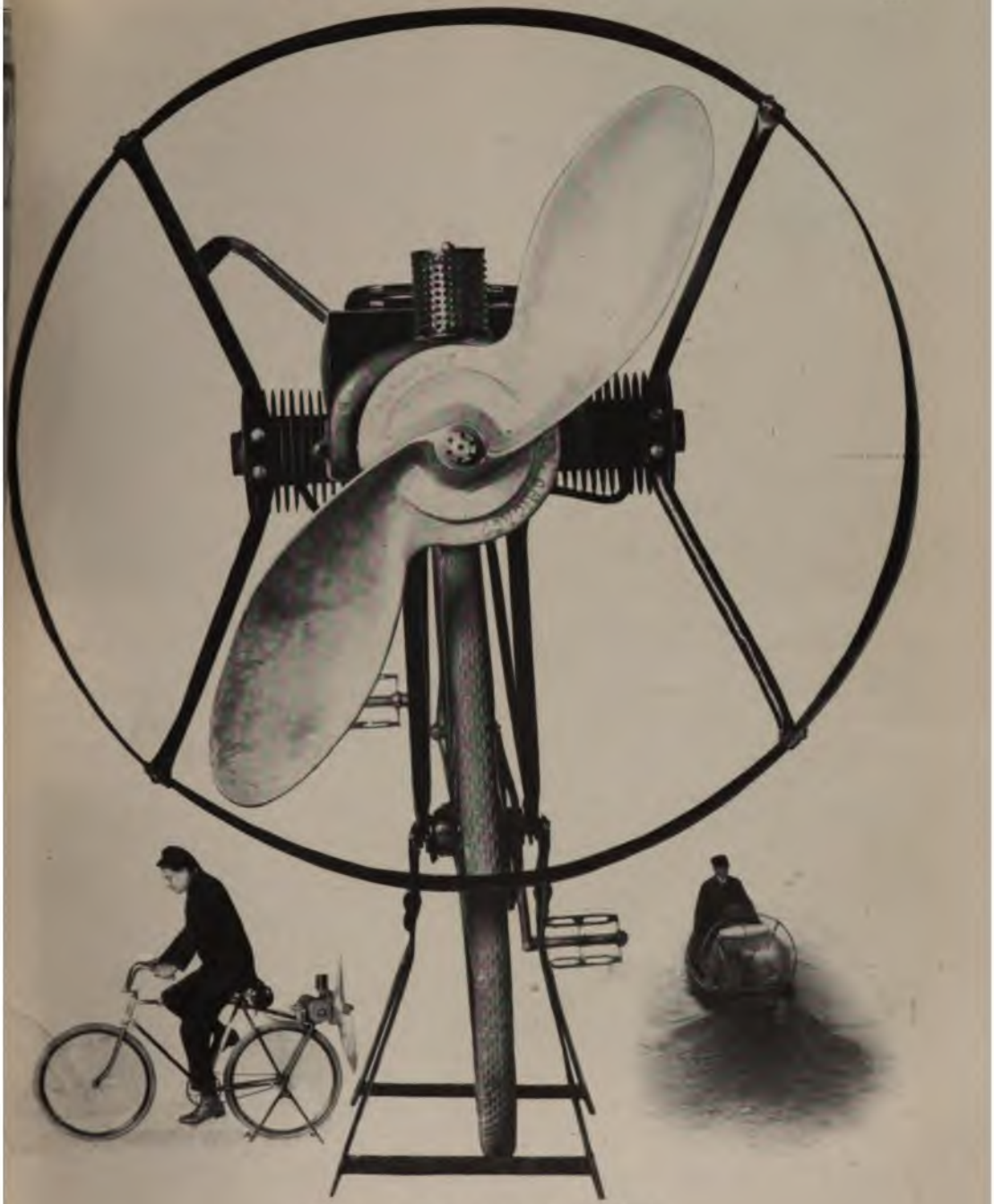
A PIER THAT WAS "SHOT" TOGETHER

BEFORE AND AFTER THE CREVICES BETWEEN THE STONES WERE FILLED WITH CEMENT FROM THE "GUN"

blows it through a delivery hose. This delivery hose may be 300 feet long, and at its end is a rubber-lined metal nozzle which is also connected to a water hose so that a fine spray of water is added to the material as it rushes through the nozzle.

"SHOOTING" CEMENT FROM A HOSE

DRY CEMENT IS EXPELLED FROM ONE PART OF THE NOZZLE AND WATER FROM ANOTHER, AND THESE TWO ELEMENTS MIX IN THE AIR AS THEY ARE DRIVEN INTO PLACE



AIRSHIPS OF THE LAND AND WATER

A BICYCLE AND A BOAT THAT ARE DRIVEN BY AËRIAL PROPELLERS

A LIGHT AIR PROPELLER

AN INGENIOUS little aërial propeller for the propulsion of small boats, bicycles, and ice boats is now being extensively *demonstrated*. The illustrations show the apparatus installed on a bicycle and on a rowboat.

The total weight of the engine, with its accessories, is about 28 pounds. The propeller and magneto weigh 16 pounds, all but 2 pounds of which rotates, thus

ADDING AND SUBTRACTING BY ELECTRICITY

THE OPERATOR IS THUS RELIEVED OF THE TASK OF CONSTANTLY PULLING A LEVER

outfit will make a speed of 25 to 30 miles an hour under ordinary conditions. The installation has no connection whatever with the pedal propulsion, which can be used if the engine is not running, or it can be used to supplement the power of the motor, if necessary, on heavy uphill grades.

A simple clamp is used to mount the outfit on the stern of a boat or ice sled. A set of universal steel tubular mountings is supplied for attachment to a bicycle.

affording an abundant flywheel effect. The propeller, which is cast of one of the lightest and strongest aluminum alloys, is 32 inches in diameter. The motor has a speed range of from 1,300 to 2,500 revolutions a minute. At 2,000 revolutions a minute a full 3-horsepower is developed. A demountable guard encircles the propeller.

An ordinary bicycle equipped with this

A NEW CALCULATING MACHINE

A CALCULATING machine that adds, multiplies, divides, and subtracts is in itself of much interest, but the most novel characteristic of this machine is that it is electrically operated. This does away with the turning of a crank and a lever. All the operator has to do is to manipulate the keyboard.

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ARTHUR W. PAGE, EDITOR

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WORLD BATTLES BEING FOUGHT AGAIN

TRAFALGAR 1805

IN WHICH ENGLAND DEMONSTRATED THE TWO-POWER STANDARD OF HER NAVY AND KEPT THE SUPREMACY OF THE SEA

WATERLOO 1815

ENGLAND HAS NOW FOR THE FIRST TIME SINCE WATERLOO SENT TROOPS TO EASTERN EUROPE, LANDING THEM IN BELGIUM TO KEEP THE KAISER OUT OF ANTWERP AS THEY KEPT NAPOLEON OUT BEFORE

KÖNIGGRÄTZ 1866

THE BATTLE THAT ENDED THE WAR WHICH PRUSSIA BEGAN TO UNIFY GERMANY JUST AS AUSTRIA-HUNGARY ATTACKED SERVIA TO UNIFY ITS DOMINIONS

BATTLES OF THE FRANCO-PRUSSIAN WAR

TO BE FOUGHT AGAIN ON THE SAME GROUNDS FOR THE SAME STAKE, WHICH IS ALSACE-LORRAINE AND THE DOMINANT POSITION IN EUROPE

THE nations of Europe are interrupting history again, fighting over the old battles on the old battlefields. One hundred years ago Napoleon ranged himself and the greatest army of the age against all Europe, and almost his most cherished ambition was the breaking of the supremacy of England on the sea. England then as now had a "two-power standard" for her navy. It was demonstrated at Trafalgar where Nelson met and defeated the combined forces of the French and Spanish fleets. England sent an army into Belgium against the Emperor Napoleon in 1815. There has been no English army in eastern Europe since, until now when the Emperor William invades Belgium and threatens Antwerp, the best base of operations against England. England again has an army trying to do again what was done at Waterloo. In 1866 Bismarck went to war with Austria because he felt that such a war would unify Germany. In 1914 Austria goes to war with Servia to solidify its heterogeneous dominions.

Forty-four years ago Prussia went to war with France for Alsace and Lorraine and the dominant position in Europe. For the same stake over the same ground the same people are fighting to-day.

With the declaration of war the world turned back to Trafalgar, to Waterloo, to Königgrätz, to the Franco-Prussian War. Nothing has been settled. These same battles are being fought again. The names are a little different, the battlefields a few miles apart, but the same principles are there. In the paintings of these by-gone fights is a vivid picture of the glory, heroism, death, ruin, waste, and futility of it all.

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ENGLAND'S TWO-POWER STANDARD 100 YEARS AGO

THE DEATH OF NELSON AT TRAFALGAR, WHERE THE ENGLISH FLEET DEFEATED THE FLEETS OF FRANCE AND SPAIN AND PUT AN END TO ANY DANGER OF INVASION AND OPENED THE SEAS *TO BRITISH* COMMERCE. ENGLAND HAS THE SAME PROBLEM NOW

By permission of the Berlin Photographic Company

THE RETREAT FROM WATERLOO

THE BATTLE IN BELGIUM AGAINST EMPEROR NAPOLEON, A HUNDRED YEARS AGO. FOR THE FIRST TIME SINCE THEN ENGLAND, AGAIN AS ONE POWER OF A GROUP OF ALLIES, HAS TROOPS IN WESTERN EUROPE, THIS TIME TO FIGHT EMPEROR WILLIAM

By permission of the Berlin Photographic Company

KÖNIGGRÄTZ, WHERE FRANCIS JOSEPH FOUGHT PRUSSIA

BISMARCK ATTACKED AUSTRIA-HUNGARY IN 1866 TO UNITE GERMANY, AS AUSTRIA-HUNGARY HAS NOW ATTACKED SERVIA, TO UNITE ITS DOMINIONS

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THE BAVARIANS BEFORE PARIS, 1870

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THE BATTLE OF MARS-LA-TOUR

IN THE FRANCO-PRUSSIAN WAR THE LARGEST NUMBER OF GERMANS UNDER ARMS AT ONE TIME WAS 835,000. IN THE PRESENT WAR EMPEROR WILLIAM HAS AT LEAST 4,000,000 MEN AVAILABLE

THE DEFENCE OF CHAMPIGNY

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THE FATAL CHARGE OF THE FRENCH AT REICHSHOFFEN

IN THE FRANCO-PRUSSIAN WAR, THE WAR IN WHICH NAPOLEON III LOST HIS POSITION AS THE DOMINANT PERSONALITY IN EUROPE AND BY WHICH FRANCE AGAIN BECAME A REPUBLIC

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"THE PIECE IN DANGER"

THE CAUSES OF CONFLICT

HE nations of Europe had each marked the course of their ambitions — and these courses crossed. The Kaiser's Government believes in the Pan-Germanism that means an influence extending through the Bal- to the Ægean Sea, Germany in control of)utch and Belgian harbors, in a further ›pment of the German colonial empire, in aintenance of the divine right of kings, and an supremacy on the sea. Russia, too, ı constructive programme. Some day ı hopes to reach the open sea on the inavian peninsula, to gain access to the erranean either by ownership or control ɜ Balkans and to open the Black Sea ıe possession of Constantinople. Nor ussia given up hope of an open port on ıcific and the control of Manchuria wrested :hem by the Japanese. Moreover, Russia more than Germany is the stronghold of ·acy. The Russian and German ambi- ›nly clash vitally in the Balkans.

contrast to these constructive desires of ıny and Russia, England has chiefly a ·ive attitude. Her empire encircles the and she is in command of the sea. She like to maintain the balance of power as She feels that she would not be safe if ıny had the ports of Belgium or Holland, ›uld she welcome her present ally, Russia, ›rway or Sweden. England's efforts to ıny strong European power out of Con- ıople maintained the Turk in Europe d his time. She does not want a Russian rman naval base at Constantinople to en her Mediterranean supremacy. Of /o, however, she prefers Russia to Ger-

In the Far East England is allied with , which blocks the Russian advance into Southern Manchuria. Moreover, liberal England believes very little in the autocracy either of Germany or of Russia. But though Russia is still the same Russia in aims against which Kipling warned England when he wrote: "Make ye no truce with Adam-zad, the bear that walks like a man," it is not the same Russia in activity. Since the Russian-Japanese War, Germany, not Russia, has threatened the balance of power which England cherishes.

With one great exception France, like England, is also content with what she has and is busy with its development; and since the French and English soldiers met at Fashoda on the upper Nile in 1898 their ways have not crossed. The one great exception to the content of France has been the German possession of Alsace-Lorraine. France wants revenge for 1870-71, and French Republicanism is not a good neighbor to German autocracy.

Germany's aims, therefore, come into vital conflict with the aims of Russia, France, and England. That is why England has made a truce with the Bear and joined with its ancient enemy France.

Germany's ambitions have isolated her from the rest of Europe, except Austria. In Austria, Germany has found "a brilliant second" for its policies, although the second has of late tried to play first part. England and Russia oppose Austria, for they feel that it is playing the German game in the Balkans. Italy, too, has added to a historic animosity a dislike of Austria's Balkan policy, for Italy itself wants not only the ports of Albania, but the Austrian ports of Trieste, Pola, and Fiume, at the head of the Adriatic.

Such are the conflicting national ambitions which have for a decade kept Europe talking of the war, which is now upon us.

WHY THE NATIONS FIGHT

BY

ALBERT BUSHNELL HART

(PROFESSOR OF HISTORY, HARVARD UNIVERSITY)

ıOR the wreck of this conflict which will increase from day to day, is there any good, clear, inevitable reason? No Napoleon has forced his neighbors to war. No Bismarck has racked Prussia :r to make Germany. No Agadir incident t off the match. No invincible horde is cing out of Asia. Europe got through alkan conflicts with*out general war.*

It is no explanation to say that this king or that emperor or the other president or prime minister wants war. Sovereigns nowadays are, at their strongest, only train-dispatchers who can order a switch thrown in one or another direction. No monarch can go against the spirit of his people. Every country included is united in what is considered a natural war. It is not a war of dynasties or statesmen or military

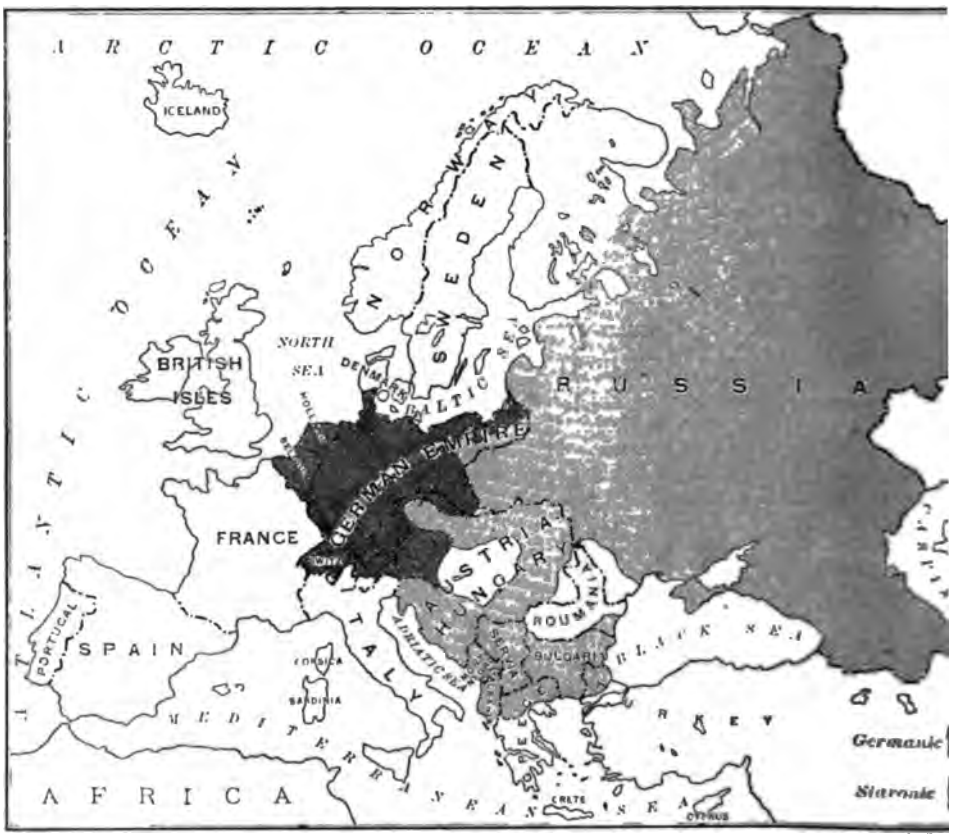
leaders. It is not a war of revenge for Archduke Franz Ferdinand.

Questions of trade and markets play a large part in the drama — but it is not the love of money which leads great navies to spend 5,000 million dollars, in order to secure a trade in which the profit cannot be more than 200 millions a year. This is a war of peoples and not of interests.

The military spirit, commercial expansion, desire for territory, and the self assertion of great nations are things that in the long run may overcome all the checks of Parliaments and statesmen and The Hague conferences. But none of them could have brought about the fearful conditions of the year 1914. The strongest and determining reason for war is the growth of race antipathies; the world has at last realized that the political boundaries of Eastern Europe cut across older and more persistent divisions of race, language and religion, and thus bring conflicts with nations and between them.

Europe is a mosaic of races. In most countries the race elements have amalgamated or have *ceased to conflict* with each other. In this crisis, the Irish in Great Britain and the in Belgium have sunk their conscio race in their consciousness of nationalit ern Europe still bears the marks of th sive waves of barbarian invasion ou heart of Asia. The Hungarians and th rians are both races that forced their Europe where they found the Slavs, the and the Latins. Then the Slavs rece fearful weight of the Turkish invasion centuries lost independence and vitalit

Yet till recently there was no strong tipathy between Germans and Slavs. many and Russia have not been at each other since the Czar Peter the Thi Frederick the Great in 1762. Till for ago the Bohemians and Germans got o bly well side by side. The race strains pulling Europe to pieces at last have themselves by rousing country against and inside Austria. There the antip tween Germans and Slavs has grown that, in the judgment of the Austria men, the Germans must fight Slavs ei side of Austria or inside of Austria. T



THE GERMANS AND THE SLAVS

WHOSE RACIAL ANTIPATHIES AND WHOSE CONFLICTING AMBITIONS TO BE TERRITORIALLY AND COMM SUPREME IN SOUTHEASTERN EUROPE ARE LARGELY RESPONSIBLE FOR THE WAR. IT IS NOTEWORT THE SLAVIC PEOPLES FAR OVERLAP THE POLITICAL BOUNDARIES, EVEN IN EASTERN GERMANY

l to make the issue perfectly clear by
g war on the one markedly successful
pendent Slav state outside of Russia.
hallenge aroused Russia, but did not
concern other Powers farther west.
them, to judge from the proclamations
ial communications, are fighting only in
nse. In the midst of the appalling misery
me, there shines out a comic gleam in
nange of discourtesies about mobiliza-
s soon as the trouble began, every one
our Central European Powers began to

the court of war, the only one that executes its own decrees.

Perhaps this war is what Tolstoi thought all wars to be, merely a blind movement of human beings, they know not why, and they know not whither, like a foray of soldier ants. Nevertheless, reasons for war can be found in the make-up of Europe, in the character, in the aims and ambitions of the great Powers. The continent of Europe is divided into ten groups of nations. Four of these are the minor groups of the Balkans; Scandinavia; the neutralized Powers of

THE RACES IN AUSTRIA-HUNGARY

IA'S SUCCESS IN THE BALKAN WAR ACTED AS A GREAT STIMULUS TO THE PROPAGANDA FOR A SERVIA AND THE REVOLT OF AUSTRIA'S SOUTHERN SLAV PROVINCES. IN AUSTRIA ITSELF AROSE EPRESSIBLE CONFLICT BETWEEN TEUTON AND SLAV

oops with all possible speed toward its
ed frontiers, at the same time calling
d to witness that they were not "mobi-

Every nation threatened every other,
hus to frighten its neighbor into giving
hout war. The responsibility for the
s upon no individual and upon no one
but upon the interlocking of Europe
cially, territorially, and racially, so that
ver after another was drawn in the
m. Perhaps statesmen felt that the
time had come at last; and that the
ims and *pretensions must be settled* by

Holland, Belgium, and Switzerland; and Spain and Portugal. Alongside these and overtowering them in wealth and military strength, are the six great Powers, Italy, Russia, Great Britain, France, Austria-Hungary, and Germany.

Europe has for some centuries been divided between four main religions. The Moslems up to two years ago still counted eight millions of Turks, Bosnians, and Albanians, but there are now only about three or four millions left in Europe. The Protestants, principally Germans, English, Swiss, and Hungarians, are about ten millions. The Roman Catholics in all the Latin

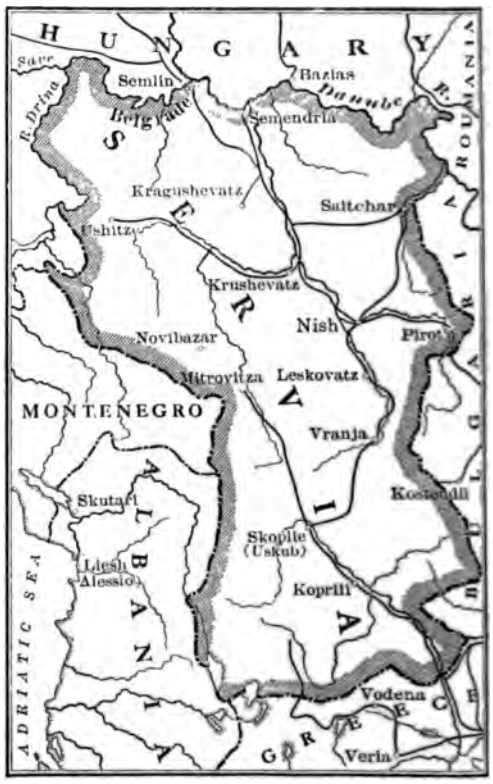
countries, Southern Germany, Croatia, Albania, Bohemia, and in Russian Austria and Russian Poland are about 180 millions. The Greek Catholics include Russia, the Balkan countries, and a few provinces in the Austrian Empire, but by no means all the Slavs. Their number is about 110 millions.

Differences of religion have caused many European wars, but during the last hundred years every European country has been obliged to tolerate churches other than that established by the State. These sects are attached to their country. Protestant and Roman Catholic Magyars are a unit when it comes to a discussion of their place in the Austro-Hungarian Empire; and there is no visible difference between the Catholic Bavarians and the Protestant Prussians in their support of their country in the present war.

Four comparatively small groups of people of Asiatic origin are the Finns, Magyars, Bulgarians and Turks, in all about 14 millions. The Scandinavian group is small, though effective, and the three countries together, *Norway, Sweden,* and Denmark, have ten and a half million people. The English, Scotch, Welsh, and Irish, between whom there seems to be no race division in time of national danger are 46 millions. The Latin powers, Spain, Portugal, France, Belgium, and Italy count 106 millions. The 2½ million Greeks are akin to the Latin. The Germans in Germany, German Switzerland, and Austria-Hungary are a compactly situated mass of 79½ millions. The Slavs of Russia, including the Poles, and not the Finns, together with the Roumanians (who claim to be a Latin race, but seem to have more Slav blood than anything else), the Servians and the various Slavic elements in Austria-Hungary are in all 111 millions.

SERVIA BEFORE THE BALKAN WARS

SEPARATED FROM MONTENEGRO BY THE TURKISH TERRITORY, THE SANDJAK OF NOVIBAZAR IN WHICH GERMAN AND AUSTRIAN INFLUENCE PREDOMINATED UNTIL THE SUCCESS OF SERVIA IN THE BALKAN WAR ENABLED HER TO INCREASE HER TERRITORY



SERVIA AFTER THE BALKAN WARS

WITH ADDED PRESTIGE WHICH ENCOURAGED THE GREATER SERVIA PROPAGANDA AGAINST AUSTRIAN RULE IN BOSNIA AND ADDED TERRITORY CONNECTING WITH MONTENEGRO AND FORMING A SOLID SLAV BARRIER ACROSS THE PAN-GERMAN MARCH TO THE EAST

Before sketching the status of the great powers, the place and influence upon the war of the minor groups must be noticed. The Balkans is an example to the world of the immense difficulty of carrying on states which contain large numbers of people; who in race and in sympathies belong to some neighbor. The second Balkan War in 1913 came about solely because there were so many Bulgarians in Greek and Servian territory, and so many Greeks and

ans in Bulgarian territory. No geograph-
boundary line can be made to fit with
race groups. The effort to adjust the mat-
y killing off villagers of different race from
of the conqueror of a region was so thor-
-going as to shock mankind, but not
ic enough to solve the problem. If the
s primarily a fight between the organized
and the Germans, the Balkans are not
interested, since there are only about
illion Slavs south of the Danube. Emperor
am last year called for a larger army and a
r war chest, because he felt that the armies
Balkans altered the balance of European
ry power. If the Balkan Powers could
stood together till this year, Austria could
ave declared war on Servia. Bulgaria and
e may easily be drawn into the conflict,
ularly if, as seems likely, Turkey makes
n the German side; and when the general
comes, it must include a settlement of the
n question.

e Scandinavian Powers are unwilling
rs in the danger of war because two of
control the natural entrance into the
Sea; and the Swedes are convinced that
a wants to subvert them. Portugal is an
f England, and proposes to join in the war.
may very likely enter the lists if France
to need aid.

e three little neutralized Powers, Belgium,
nd, and Switzerland, have already learned
"neutrality" means between desperate
ns. The Emperor William a few months
as much pleased by the Swiss manœuvres,
se they prove that he could "spare two
corps." The remark meant of course that
er France nor Germany could safely force
through Switzerland. It meant also that
ermans intended to use Belgium as their
ay into France, treaty or no treaty, in-
tional law, or no international law. Hol-
has no protection from Germany except
roops and ships of the nations that com-
the Triple Entente.

ITALY

ly joined the Triple Alliance about twenty
ago, because she was then on very bad
with France. To Germany and Austria
talian navy and merchant marine were a
l attraction.

ly has three territorial objectives which
largely affect her position: (1) on the
side of the Adriatic Sea, a decided conflict
terest with Austria has developed; (2)
desires the extension of her colonies, as
li is at present her only valuable colonial
ssion. Italy desires to annex Trentino,
talian-speaking district in the southern
l, and Trieste, the population of which is
n. But they might as well attempt to
out the right eye of Emperor Francis
h as to take Trieste for it is the only sea-
in the Austrian half of the Austrian-Hun-
n Empire.

Russia has for centuries been a reservoir of compressed political gas, pushing in every direction for an outlet. When Peter the Great came to the throne two centuries ago his country was almost shut off from the Baltic by the Germans and Swedes — and the Tartars cut him off from the Black Sea. War after war was necessary to gain free access to the Black Sea and the Baltic Sea. Meanwhile the Russians pushed into the thinly settled area of North Asia until they reached the Pacific.

The obvious line of approach to the world's commerce for Russia is through the Bosphorus and the Ægean Sea to the Mediterranean. That route is held by the Turks, who for the last fifty years have been backed up by first the English and French, and then by the Germans.

Russia has gradually torn away fragments of the Turkish Empire along the Black Sea and has aided in building Roumania and Bulgaria out of the ruins of Turkish provinces. In 1878 a Russian army marched till it was in sight of the minarets of Constantinople, but the English under Disraeli compelled Russia to give up the fruits of that victory. As the great Slav Power, Russia is not always keenly interested in the expansion of small Slav Powers; but it has for years urged the policy of pan-Slavism, whatever that may mean. If the issue of German against Slav is clearly raised, as it seems to be in this war, Russia could no more keep out of it than she could forbid her subjects to attend the Greek Catholic Church.

It is a singular fact that till 1914 there never had been a serious war between Russia and Austria. Though the Russians were defeated by the French, English, and Piedmontese in 1855, and by the Japanese in 1905, they have in many wars shown military talent and a fine fighting force. Russia is the only nation which without the assistance of allies defeated the great Napoleon.

In case of victory the Russians will certainly demand Constantinople, which means that the Turk would be finally shoved out of Europe; England and France would probably favor that solution of the Near-Eastern question. If Sweden should be involved in the war, Russia may claim part of that country. Some "rectification of the frontier" might be exacted from Austria. On the other hand, if Russia should be seriously defeated, the Finns and the Poles may rise. As late as 1863 there was an insurrection in Poland. Otherwise it is not likely that the great colossus of Europe will be under any circumstances put in a less favorable position than that which she occupied at the beginning of the war.

England in this contest is not fighting to gain anything new, but simply to hold what she has: first of all her commerce. And there seems a reasonable chance of protecting English merchantmen while German and Austrian must lie in port or be captured. The Japanese have undertaken to look after English interests in Asia.

The English hope to shut the German navy up in the North Sea, for without a supply of food stuffs from other parts of the world England would be starved out after a few months; while France, Germany, Austria, and Russia can probably feed themselves and their troops. The English colonies scattered all over the world are a bait to the Germans. Canada, Australia, and probably South Africa can take care of themselves, but India is a problem which nobody at present can solve. Germany, Russia, or France can be badly defeated without losing much territory or dropping a place in the scale of nations; but not so with Great Britain. A victory of the German powers would infallibly deprive Great Britain of a part of her colonies, a large portion of her trade, and the prestige of being the greatest sea power in the world.

FRANCE

Of all the great powers France is the freest from internal dissension. The 207,000 square miles of the main country has but 40 millions of population; and the French have been almost in despair because Germany grows so much faster and therefore has so many more recruits. The colonies of France in Africa and Eastern Asia are nearly as large as the United States and its dependencies; but they contain only 41 millions of an indifferent population. Almost the whole population of France, so far as it has religious affiliations, is Roman Catholic.

France is supposed to be the thriftiest large country in Europe, and is able to raise nearly a thousand million dollars a year for national and local public purposes; but the debt is more than six years' national income, and it will be much increased by the war. The country has had a splendid foreign trade of 1,700 million dollars of exports and 2,000 million of imports, and it owns a considerable merchant marine.

If the central powers should get control of the sea it would go hard with the French colonies, which it is supposed the Germans hope to secure. What the French expect from the war is first of all the recovery of Alsace-Lorraine which the school children are taught to consider two French provinces temporarily in possession of a foreign power. It was a tactical mistake for the Germans to wrest from France provinces which have shown themselves so French in feeling, that they have never been allowed to have a popular government. The French frontier sweeps about within sight of Metz, which is one of the strongest fortresses in Europe. If the French have the physical power, and their allies will back them up, Alsace-Lorraine will be claimed as their reward at the end of the war.

A second important object of France is to wipe out the fearful disgrace of the war of 1870 and 1871. Napoleon the Third put his country in a position to be disciplined; but it was the French nation, the French people, and the French army that were defeated and humiliated. They mean to prove to mankind that they can so treated a second time.

AUSTRIA-HUNGARY

The centre of the crater in European is Austria-Hungary, through which for a run the boundary between the German a Slav races.

The Austrian-Hungarians have but o coast stretching between the two ports of and Fiume, beside the mountainous c Dalmatia, which has a Serb population. theless she has developed a creditable cor and her ships run to Constantinople, to and to New York. A main object of Au this war is to push that coastline farther wiping out Montenegro and part of A or even to follow out a plan cherish half a century to obtain a tongue of la tween Bosnia and the Ægean Sea, with t of Salonica.

The three objectives of Austria in t therefore appear to be: (1) The "execut Servia as a lesson to all Serbs of what w pen to any head that raises itself ab level; (2) the extension of territory sout (3) The holding of the Slav population by force, and partly by trying to bring people to feel that their country is in For it must never be forgotten that b Balkan people and the Austrian-Hu Slavs if they cannot be independent will not be Russian. Probably every group inside the Austrian-Hungarian bounda stay there, rather than incur any such da

Whatever happens to any other Austria-Hungary is playing a desperat bler's game in this war. The Magyars wl long hated and thwarted the Germans now united with them to keep their Slav citizens in order. If Austria and Germ victorious, the empire will be safe t time; although no one outside the bou of that empire can guess the possibility risings during the war; or the likelihood t Slavs will take to heart the lesson th must remain inferior and subordinate i trian-Hungarian affairs.

GERMANY

By common consent the most forr military power in Europe is Germar area (200,000 square miles) it is almost equal to France, but the population is 65,0 of whom 52,000,000 are Germans, and 2,0 are Slavic Poles. With that exception t nowhere in the land a seriously discor race element. In its colonies, which are African, the million square miles conta 24,000 white people. In the Empire th 40,000,000 Protestant, 24,000,000 Roman olics and half a million Jews.

The national taxes are nearly 1,000 milli lars a year and the debt is about twelve income. The country has a magnificer tem of railroads, and canals, and a splendi

narine of more than 3,000,000 tons; and ard and outward trade of 5,000 million

No country has ever made such efforts y on business, government, and military n a scientific and systematic way.

ıany's objects in the war are perfectly First of all, to give notice to all the Ger- n Europe, to the Magyars, and to the ı, Austrian, and Hungarian Slavs who good," the assurance that Germany will ır them and with them. In the second he Slavs outside those two empires are l that the Germanic power is massed them. In the third place, if only Ger- an get the command of the sea (in which ı can be of very little aid) the French and English colonies must fall. A decided land victory over the allies in Europe might justify the demand for possession of colonies that had not been taken by the fleet. Germany is not likely to look for Russian territory, except perhaps one of the German speaking provinces on the Baltic; but if she can she will insist upon a free hand in Asia-Minor, either by an understanding with Turkey or by crushing Turkey. Finally, if Germany is able to bring it about, Holland will almost surely be annexed. It is the natural distributing point of German commerce, and with Holland goes a tidy lot of Asiatic islands. A victorious Germany will not go into any peace negotiations congress without bringing home a substantial conquest of colonies.

E ALLIANCES THAT MADE THE WAR

BY

ROLLO OGDEN

(EDITOR OF "THE NEW YORK EVENING POST")

ıHERE may be doubt who lighted the match that has wrapped Europe in a flame of war, but there can be no question what constituted the material of conflagration. It : grouping of the great Powers. They ; a series of powder magazines so con- that when one was exploded the others ı. Fire started in the Triple Alliance set al Alliance ablaze; and the Triple En- ɔeedily showed that it, too, was highly ıable. The verdict of history will agree ıe calmest contemporary judgment in that but for these various alliances, alancings of the nations, these arrange- treaties, understandings, Europe could ve been suddenly turned into a vast ɜs.

ıuld be hard to find a swifter conception er statement of this truth than in the col- ɔf a leading organ of German public , on the very eve of the war. The *ırter Zeitung* of July 27 had a searching ; of the perilous situation created by the ultimatum of the Austrian Government ia. The significance of that act pene- he European mind much more quickly did the American. This was partly the press of the United States was erved by its foreign correspondents in air. They cabled almost nothing about days after every intelligent newspaper and, in France, in Russia and in Ger- vas expressing a sense of the terrible confronting Europe. It was again a ; with the tell-tale premonitions of the War) when those who supply European ı the American press found it easiest to ignore the whole matter, as simply another of those far-off, tedious quarrels in southern Europe in which the public of the United States took no interest. Near by, however, the alarm was instant and acute. To go back to the *Frankfurter Zeitung's* article of July 27, it began by saying that the Austrian demand on Servia would be a severe test of "the existing system of European politics." It immediately perceived that the Triple Alliance (Germany, Austria, Italy) would be strained in its last fibre. It was in no doubt that the Dual Alliance (Russia, France) would at once vibrate in response, and that, the Triple Entente (Russia, France, England) also beginning to function, the nerves of all Europe would be racked. Then would come the answer to the question whether these alliances were really a splendid "instrument of peace." As such they have long and loudly been boasted, but the intelligent Liberal newspaper of Frankfort proceeded to say: "We have not shared that belief, but on the contrary have firmly maintained that European peace did not depend upon an equipoise of Powers in groups, but upon the broad basis of a justly ordered union of the peoples." Then it added that the proof as to who was right would soon be forthcoming. If the Triple Alliance prevented war, it would be truly "rich in blessings to European politics," but if not, it would be seen to be "a chain binding the peace of Europe to the will of persons and cliques in whom the citizens of states governed in the spirit of liberty could place small trust."

The event demonstrated that the fear was better grounded than the hope. Directly to alliances that were long held up as the surest safeguards of peace, is traceable the most stu-

pendous and, in high probability, the most devastating war Europe has ever known. Almost as the guns began to go off, the President of France and the Czar of Russia were toasting in St. Petersburg the Dual Alliance which, in their phrase, made peace a certainty. Hardly had the words "la paix assuré" died on their lips when declarations of war were thundering all round the horizon. The famous "Go, my son, and see with how little wisdom the world is governed," gains new point from the melancholy crumbling into ruin of the fabric which the best statesmanship of Europe has been for thirty years erecting.

To understand the system of alliances we must know something of the system which preceded it and which it displaced. This was the old doctrine of a European equilibrium. It was commonly known as the Balance of Power. This has never been described more picturesquely, and at the same time philosophically, than by Kinglake:

> Any prince who might be inclined to do a wrong to another State casts his eyes abroad to see the condition of the great Powers. If he observes that they are all in a sound state and headed by firm, able rulers who are equal, if need be, to the duty of taking up arms, he knows that his contemplated outrage would produce a war of which he cannot foresee the scope or limit, and, unless he be a madman or a desperado desiring war for war's sake, he will be inclined to hold back. On the other hand, if he sees that any great nation which ought to be foremost to resist him is in a state of exceptional weakness or under the governance of unworthy or incapable rulers, or is distracted by some whim or sentiment interfering with her accustomed policy, then perhaps he allows himself to entertain a hope that she may not have the spirit or the wisdom to perform her duty. That is the hope, and it may be said in these days it is the one only hope which would drive a sane prince to become the disturber of Europe.

This was the general theory of alliances — fluid and changing as will be seen — which obtained in Europe for fifty years after the Napoleonic wars. It was brought to an end by Bismarck. In place of it he set up the idea of rigid and hard-and-fast alliances. Himself the creator of the Triple Alliance and — by reflex action — of the Dual Alliance, it is the workings of his mind that we must study if we would comprehend the "system" of modern Europe that emerged from it. A wonderful brain it was, that one of Bismarck's, and for years it was busy combining and shifting and re-combining the Powers, as a chessmaster works over the possible moves. To a statesman who could occupy his sleepless hours by selecting a new Cabinet for Portugal, the game, or task, of so arranging and allying the countries of Europe as, in the first place, to further German policy, and next, to keep the peace as long as possible, must have been fascinating. He did not leave the world in ignorance of his viewpoints or his methods. No more repaying chapters will one find in his "Gedanken and Errinerungen" than those in which h his theories of European alliances. ' writes has to be carefully checked a points, but as we read we feel that we let into the first plans of the architect the edifice that, until the other day, fore us in its proud and fair proportion

It all dates back to the battle of K in 1866. By this is meant that im after that crushing military overthrow tria, Bismarck, whose spirit, more t Metternich's, ever "wrestled with to perceived that Germany might soon alliance with Austria, if not her f Thereupon he proceeded to enforce an policy of moderation upon the reluct William and the impatient forward Prussian army. He vetoed a march int In preparing for the treaty of peace a burg, he insisted that no territory s demanded from Austria. Why take would have to be occupied by Prussia when every available man would soon for the greater struggle with France quired all of Bismarck's force and aut carry through a settlement of this ten by the aid of the Crown Prince was h break down the strong opposition of But he succeeded; and his foresight pletely justified later. Having in hi the secret treaties of offensive and alliance with Bavaria, Württemberg an and with Austria's benevolent neut sured, he was free to go on spinning matic and military net about Napole

This germ of an alliance with Aus marck set himself to cultivate and exp the defeat of France and the consol the German Empire. He had no f temporary coalitions. They gave hi mares, he said. What he desired was ing combination of great Powers. T Alliance, as he originally conceived it, of an alliance of the three Emperor he hoped to bring in Italy. He had the plan even before the end of the Fr and immediately after the peace of set about accomplishing it. Europe it in apparent effect. The *Dreikais* Austria, Russia, Germany — functio cessfully for three or four years. It w up in 1875, by, as Bismarck mainta provocations and lies of Gortchakoff. in that year Bismarck really intended another war upon France, is still disp is certain that Moltke urged him to do also certain that England and Russia iously alarmed, and that at this time Russian inclination to France, out soon grew the Dual Alliance. This Bismarck to alter his scheme, to aba hope of a firm understanding with Russ he protested to the end that he alwa have preferred, since he believed tha was the natural ally of Germany, an same time the strongest one she could h

to fall back on the only powerful alliance then open to him — that with Austria and Italy. In this way was born the Triple Alliance which has lasted for more than thirty years since Bismarck formed it, and which was the immediate cause, through its obligations and binding military agreements, of the present war in Europe.

Italy's motive for joining the Triple Alliance has always seemed a little obscure. How could Bismarck persuade her to clasp hands with her hereditary enemy, Austria? It has been said that he did it by playing upon her vanity. Italy was flattered by being invited into the circle of the great Powers. But there was another and a real inducement, which Bismarck knew how to lay before Italy in attractive form. She was jealous of French expansion in North Africa. Against that she could fortify herself by entering the Triple Alliance. And when the time came for her descent upon Tripoli, she would have, as she did have two years ago, a free hand. This must have been the chief consideration in the mind of those Italian statesmen who have for a generation held Italy true to what seems for her an unnatural and awkward alliance. Now that she has achieved the main end she aimed at, it is not strange that she has been showing signs of coldness to an alliance that could hereafter mean for her only small benefit and great burdens.

Bismarck was perfectly frank in stating the object he pursued in forming and maintaining the Triple Alliance. His reasons were partly dynastic. The houses of Hohenzollern and Hapsburg he would firmly establish beyond the shock of republican or socialistic agitation. The Romanoffs he would have gladly included, had not Russia drawn apart. He feared that there would be a great struggle between the two European tendencies which Napoleon called the Republican and the Cossack. Bismarck was for the system of order on the monarchical basis, and it was to stiffen and strengthen it that he created the Triple Alliance. But he had also a military purpose — a defensive purpose, as he contended. He desired to add to the fighting power of Germany the armies of Austria and Italy, in such a way that the Empire could be free from danger of attack, and might enter securely upon that work of national development and increasing influence in the councils of Europe which he thought of as belonging by right to the greater Germany which he had builded. And it is certainly a high tribute to his prescient and puissant statecraft that this creation of his genius should have endured, with scarce a change in form, till this day. The Triple Alliance has been regularly renewed, at each period of expiration, as if it were one of the fixed institutions of European politics.

It is not to be supposed that the Triple Alliance was an alliance in everything. Each country in it was free to act as it chose in those matters which lay outside the agreed scope of common action. The result is that there has often appeared to be, in *questions not* exclusively European, a regrouping of the Powers as if in utter disregard of the Triple Alliance. One such case arose at the close of the war between Japan and China. In opposition to England, Russia and France were closely drawn together with Germany in protesting against the proposed cession of territory to the Japanese. This they did indeed prevent. At that period both Russian and French diplomacy was strongly anti-English; and an observer at that time knowing nothing of what had gone before, would have concluded that the real Triple Alliance, if one existed at all, was between France, Russia, and Germany! So like a dissolving view does the whole system of European friendships and alignments often appear.

No student of European politics could, for example, have predicted anywhere between 1899 and 1903 that Europe would in a few years see, over against the Triple Alliance, and supplementary to the Dual Alliance, a Triple Entente uniting France, Russia, and England and bidding fair, as it does at this moment, to refashion the whole political system of Europe. This was, given the past history and diverse interests of the countries composing it, an even stranger mating of opposites than the alliance which bound Italy and Austria up in the same bundle. That England could act in hearty unison with France seemed only less unlikely than that she could so act with Russia. But she actually joined both in the Triple Entente! Its nature has all along been indefinite; its scope has not been known accurately by the other European Powers; it has been, as it were, the mystery of diplomacy. There was no absolute treaty underlying it. This was made certain by the statement within a year of the British Prime Minister, in answer to a question put to him in the House of Commons, that England had not bound herself by treaty to act jointly with France and Russia. This left the matter still very much in the dark. The first clear light was given by Sir Edward Grey just before the war broke out. He explained that, while no specific and binding agreement had been made with France, an exchange of notes had taken place between the two Governments. The purport of them was that if either country were attacked by a third, the two would consult together for common defense. Sir Edward had nothing to say to the Commons about Russia. But in the official publication of diplomatic correspondence which he authorized shortly afterward, was a telegram from the Czar to King George urging him "to stand by" Russia and France. This would imply that all three were placed very much on the same basis by the Triple Entente. Not a formal pact, it was of the nature of "a gentleman's agreement." All depended upon the good will and good faith in which it was lived up to. In the result, it appears to have been as effective as an actual alliance cemented by treaty; having most of the advantages of the latter without some of the embarrassments.

How the Anglo-Russian *entente cordiale* was brought about, is not definitely and fully known. But the work of perfecting a good understanding between England and France was done under the eyes of the whole world. Sir Thomas Barclay, in his recent volume of "Anglo-French Reminiscences," has detailed most of the steps. Great difficulties had to be overcome. There was inherited suspicion along with historical causes of bitterness, on both sides. Moreover, there has been recent instances of severe friction. The position and the interests of France and England in Egypt furnished material for sharp controversies and almost open quarrels during a period of years. The French annexation of Madagascar was a thorn in the side of Great Britain. In 1898, Major Marchand at Fashoda brought the two countries to the very verge of war. And as long as Lord Salisbury, who neither liked nor trusted the French, was in charge of the conduct of British foreign relations, nothing was possible except the continuation of a policy of pin-pricking on both shores of the Channel. A better spirit showed itself when Mr. Balfour became Prime Minister; and little by little, by the aid of commercial organizations, by the tactful offices of King Edward, and by means of a more intelligent diplomacy in Paris as well as in London, the two countries entered upon cordial and even close relations. The great outward and visible sign of this significant change was the Anglo-French Arbitration treaty of 1904. Indeed, in this was the formal decision of France finally to give England an entirely free hand in Egypt, as well as England's consent that Morocco should thereafter be ear-marked for France; and any other question that might arise to disturb the good feeling between the two countries, they agreed to refer to arbitration. After this, the pressing on to the fuller and more fruitful Entente, into which Russia was soon drawn, was natural and easy. Thus against Bismarck's Three came to stand a Three which he and all the statesmen of his day would have asserted that it would be absolutely impossible to bring together. But the political impossibility of one generation is often the established fact of another.

Though the Triple Alliance was in effect for a generation, it was until very recently of the nature of a dormant force. Not what it did, but what it might do, was long the chief concern of the other European powers. It was plainly a high potential. Yet the purely ornamental or, at least, exterior functions of the Triple Alliance were for many years the only public proof that it gave of its existence. There was the annual exchange of royal visits between Vienna and Berlin and Rome; there were the military reviews, the naval displays, the banquets, the toasts, the embracings. Similarly, the Dual Alliance seemed content to take it out in flourishes about the undying friendship between Russia and France. But a sharp warning was given six years ago. An overt act showed that the latent possibility in the Triple Alliance might any day become a threatening reality. In 1908, the Austrian Government suddenly announced the annexation to Austria of Bosnia and Herzegovina. These two provinces had by the Treaty of Berlin been placed under an Austrian protectorate; but their cool taking over as part and parcel of a Dual Monarchy, was a direct challenge to European diplomacy. Russia was deeply moved. Every Slavic fibre in her heart thrilled with remonstrance against this subjection to Austria-Hungary of Slav populations. England was the first to protest. Sir Edward Grey urged that no step in disregard, if not violation, of a public treaty of Europe could be warranted except by a congress of the Powers, of which he proposed the early summoning. But Germany, of course, aware in advance of the Austrian plans, objected; and when Russia thereupon began to hint at using force against Austria, the action of the Kaiser was swift and menacing. He threatened an instant mobilization on the Russian frontier; and the Czar's military advisers warned him that the Russian army was in no condition to resent this: On the 24th of last July, however, the Minister of War informed the Grand Council at St. Petersburg that 1914 was very different from 1909, and that Russia was now in position to ignore or defy the military threats of Germany. This shows how the affront, as Russia considered it, of the annexation of Bosnia and Herzegovina had rankled in the Czar's mind these six years, and how he was determined not to be caught again by an anticipatory German mobilization. The Bosnian incident may also have had its effect on the year's crisis in another way. It may have made Berlin over-confident. Having frightened Russia from interfering with Austria's forward policy once, why not think to do it successfully twice? However this may have been, there can be no doubt that the events of 1908–9 were the sure prelude to the war of 1914.

In whatever way that war may end, one result of it is certain to come. The Triple Alliance will expire. This would happen even if German and Austrian arms should triumph. In that case Italy would come in for something very different from an invitation to renew the Triple Alliance. Victory by England, France and Russia would clearly make such a renewal impossible. Indeed the whole system of European alliances will be radically altered by the war. Perhaps in time we may see it displaced by some form of that *Völkerverein* of which the *Frankfurter Zeitung* spoke. At all events, the Triple Alliance, which was said to have kept the peace of Europe for thirty years, and which has now plunged it into the most terrible of all wars, will soon be as dead as the Holy Alliance of our grandfathers.

A WAR CORRESPONDENT'S IMPRESSIONS OF THE FIGHTING ARMIES

BY

JAMES F. J. ARCHIBALD

[Mr. Archibald has seen service in fifteen campaigns, has been with twenty-six armies in the field, and has seen sixteen armies in actual international war.— The Editors.]

FROM a purely military standpoint the European crisis of to-day presents a situation that staggers the mind of any one conversant with the technical side of warfare. Bullets and bayonets are the spectacular sources toward which the public invariably turn for their news sensations, but as a matter of fact they are of the smallest importance in the military scheme. First of all comes the problem of the commissariat and then that of transportation.

It was Russia's line of communication that defeated her in Manchuria, not the Japanese. Her distance from her base of supplies and her general unpreparedness brought defeat to her arms, but to-day a different situation arises. The combatants who have cast their lot for war border, geographically, so closely upon one another that the problem of transportation does not enter largely into the present campaign; the theatre of war is comparatively so small that there remains but one serious problem, the commissariat, and that has been fully anticipated by Austria and Germany. It remains to be seen whether Russia and France have food supplies sufficient to maintain their forces for the next eight or ten months, while their sea communications are in jeopardy or possibly interrupted.

During the last few years I have spent many months in the field with these various armies. The Russians impressed me as a magnificent fighting force. They are heavy and slow in movement, but their rank and file knows no thought but that of obedience. I saw the Boers lose fight after fight, and position after position, because the rank and file "thought it out" for themselves and disregarded orders, but the Russian soldier will go unthinkingly into any position where his officers lead him. I have seen entire regiments of Russians wiped out to a man by the enemy's artillery fire apparently without an idea of retreat. They were ordered to hold their position and they held it, even with their bodies, in death. Such sacrifice is necessary in warfare, and it enables commanders to play their grim game in their own way.

The Servians will be no easy task for Austria, but the result as between the two countries is inevitable, for Austria must conquer with her superior force, her *superior equipment*, and her splendid training. A comparatively small force can simply hold them in check, while Austria's main army joins Germany on the north to repel Russia, and later when less occupied, if victorious, the Germans and Austrians can push against Servia.

Roumania will be an important element, and, if it is possible for her to remain neutral, she will gain much in this struggle. Less than four months ago I had a long talk with Crown Prince Ferdinand of Roumania, and, in anticipation of some such trouble, he said that he had advised his uncle, King Carol, to remain neutral at any cost. However, the engagement of Prince Ferdinand's oldest son to a daughter of the Czar of Russia may have its bearing on the situation. If Roumania remains neutral it prevents Russia from going to Servia's aid except by frontal attack through Austria and Hungary. If Bulgaria enters the fight with Servia the Russian troops could be landed on the Black Sea and put into action in two days by rail communication.

My recent tour of the Balkans convinced me that it will be a most difficult task to bring any enthusiasm among the lower classes in either of these countries except Roumania, where the peasants are of a higher class. Roumania is strictly for peace, but I have never seen a more magnificent force of men than constitute her army. Her aeronautic corps is highly advanced and her artillery equal in efficiency to that of the French. The whole country is more like France, and French influence is more in evidence than that of any other country in Europe. In Bulgaria and Servia the lower classes have had their fill of the horrors of war, and, although they will be compelled to fight, their movements will lack much of the zest and patriotic enthusiasm shown at the time they fought the demoralized Turks.

It is different in Austria. I recently spent several months in Germany, Austria, and Hungary, and found a war spirit pervading the entire country. The Austrian soldiers form an ideal military force. They are as strong and hardy as the Germans, but have all the active mobility of the French. The Hungarians are of the same type and are, if that were possible, even more patriotic and more greatly imbued with the war spirit. An incident which

came to my notice recently serves to show that spirit. I was visiting for a couple of weeks in Belgrade, and was invited by the Austrian Minister, Count Forgach, to attend a review of several thousand troops at Semlin, just across the river in Hungary. While riding back to the barracks after the review, the commanding officer of the regiment of Hungarian Hussars with whom I rode called up man after man from the ranks to speak to me. Every one of them were American citizens, eight of them belonged to the Pennsylvania National Guard, and each of them had returned to Hungary for his military service as a matter of pleasure, not duty. The war spirit is very strong. I doubt if there is any other country interested in this war where the patriotism will be as keenly shown, with the possible exception of France. There, of course, the same feeling is universal.

Austria and Servia have precipitated this titanic struggle, but underlying that local situation which came to a head following the investigation of the assasination of Archduke Ferdinand and his wife in Sarajevo, there is the great problem of an economic war between the Slav and the Teuton for supremacy in the Balkans. Russia has not been supporting Servia for the last years for Servia's good; she has not poured arms and ammunition and instructing officers into Servia for Servia's good; neither has she made presents of batteries of artillery to the Bulgarian Czar for the good of Bulgaria. Russia has been preparing for this struggle ever since she was checked by Japan in the Far East. Austria has known this, Germany has known it — in fact, every one seems to have known it, except the Servians and the Bulgarians. They apparently wish to believe that Russia is helping them for their own sake as a pure matter of philanthropic aid. Russia has entered upon the struggle to determine what nation will dominate the future of Europe.

Turkey must be seriously considered in this conflict. Her arms might easily be the balance of power. There is no better fighting force in the world to-day than the Turks. I saw a hundred thousand Turks mobilized in Albania during the revolution before the Balkan War, with as little trouble as we would move a brigade — magnificent fatalists, armed and equipped in the most modern manner. These men went down to defeat before an inferior people and an inferior force, beaten, not by the arms of the enemy, but by politics at home. A few weeks ago I saw these same Turks in Constantinople. They again had their old spirit — their equipment was even better, and the useless domains of their empire, which has been a drain on them, had been cut off. A new party is in power, and the Turkey of to-day must be reckoned with in this struggle, both in arms and in diplomacy. There is no better infantry in the world than the Turkish infantry; their abstemious habits, their national temperance, which is a part of their faith, puts them among the best foot soldiers of the world.

France seems to be prepared to the minute, and her patriotism can never be doubted; but her great error was in allowing Germany to strike first. France should have had her mobilization well under way, and not allowed herself to be caught unprepared.

It would be difficult to find two armies more unlike in every detail than those of France and Germany. The German force is a force of great strength, of solid frontal attack, of slow-moving bodies of great power and heavy discipline. In France the discipline is different. I would never call it lax; it is friendly. The officers and men are in closer relations than in Germany, but their efficiency is surely just as great. The French army is far more mobile, their artillery is the best in the world, and if it be properly served it should be the mainstay of the Republic's fighting force. I have never seen the French force in action except in a small way in Morocco, but even there their adaptability was proven, and they showed their true worth in this small African campaign.

The French native force of Northern Africa is bound to be a great element in the present struggle against Germany, and no time will be lost in throwing them in the field in France. They are a hardy, fast, fight-loving mass, and will glory in doing their share in a European war.

No great war has been fought since the development of the aeroplane, and all military authorities look forward with much interest to the ultimate result of the world's first experiments in this branch.

Each country engaged has spent much money and much thought upon this most important arm, and some vital effects are bound to be the result. The primary effect will be that the present state of aviation will tend toward shortening the war. Many days and weeks of waiting for reports from scouts and scouting expeditions will be obviated; great masses of troops and important movements will be easily detected by this modern method. Thousands of lives were formerly sacrificed in the necessary endeavor to deploy and discover the enemy. I sat on the top of a hill in Manchuria with the staff of Lieutenant-General Baron Sassulich, and saw him send three regiments forward to certain death, simply to discover the enemy. It took them half of a broiling hot day, and very few of them returned after they had accomplished their task. To-day one man can accomplish that work in an hour.

France is undoubtedly better prepared for this branch of the service than any other of the countries at war. Each privately owned aeroplane will be placed at the service of the Government, and the factories in France will be able to keep the supply equal to the military demand. For France it will be most important, for it will allow them to keep in constant communication with their allies even should all telegraphic and sea intercourse be interrupted. It will even permit the importation of minor supplies and ammunition into a besieged city.

rmany has devoted much consideration ·eat dirigibles, she is ready to take the in this aerial warfare, and as the radius ty of these monster airships is very ir menace will be serious indeed. Even will not be free from vital attack.

a will surprise the world in her pre- s in aviation. As a member of the Aero Club I have followed the progress ·velopment for the last five years, and ·en most active. Under Baron Con- Economo, a cousin of Ambassador ·ine Dumba, the private air-fleet of and Hungary has grown to enormous ·ns. Baron Economo is the president ·ro Club of Vienna and has been work- ·junction with the governmental officials ·p a corps to be placed at the command mperor in a time such as this. Their allowing a small force to occupy the of the Servians will be very great as l prevent any troop movement of surprising any portion of the Austrian this connection a motor corps has ·ntly organized in Austria which now many hundreds, and their value in the ·nsportation of troops and supplies is ·ious. It includes every sort of motor- ehicle, automobile, motor cycles and ·cks. In a country where compulsory service is in force all motors and their drivers could be commandeered in any event, but their organization in time of peace forms a splendid foundation for a war-time movement in transportation.

Russia's aeronautic corps has not been as highly developed as that of the other countries, but she has several hundred aeroplanes and their service is sure to be of vital importance owing to the fact that she must oppose two nations on the frontier.

Servia has ten of the most modern air craft, but she has not developed their efficiency to a degree where they will be of material benefit during the present struggle. She had these same craft during her recent war and did not make any effective use of them whatsoever.

The great problem of the war in Europe will be food. England has only a few months' food supply on hand at any time. She is entirely dependent upon Canada, America, Argentina, and Australia, and should the control of the sea be in doubt for a moment her ships could not transport the supply. France, Germany, and Austria will also experience much difficulty in providing their food supplies. Russia will be in a better position as she will be able to subsist her armies from her eastern provinces which are not affected by the war or even to supply herself over the Trans-Siberian railroad.

THE TROOPS THAT HAVE SEEN SERVICE

curious fact that almost all the troops ·war that have seen actual service before the armies of the anti-German allies. ukden, in 1905, Russia had as large a army as ever entered battle in the f the world. In that one battle Russia ·00 men. The soldiers in its armies in received a thorough seasoning. The ·portion of these veterans is available ussian Army now. They have proved es to be excellent soldiers. The re- the United States army observers in ia bear witness to the stubborn courage ·ssian soldier under the most trying s. Even with the poor leadership ·ich he suffered in Manchuria) he will emendous losses without breaking. nchurian veterans will toughen the he Russian army. Whether the lessons huria quickened the intelligence and the skill of Russian leadership is still ·.

's ally, France, has also a body of asoned by actual warfare though not large a body. Within the last ten ·nce has had *as many as 70,000 troops ·o at one time. Though the* service in North Africa has not been against such adversaries as now confront the troops of the Republic, it has been a particularly arduous service in a difficult country. Under these conditions the French North African force has become one of the best known fighting forces in the world.

England's last active fighting on a large scale was in the Boer War twelve years ago, when it had a million men in the field. England should be able to draw on some of those men, and the officers in command of the British army now very largely got their actual experience in the South African campaign.

The best seasoned troops in the war are the Montenegrins and Servians, veterans of two bloody wars hardly a year gone by.

On the other side the German and Austrian armies are without actual war experience, except for the Southwest African campaigns of 1903–6 in which there were nearly 20,000 German troops at one time. Germany has not had a larger body of troops engaged than this since the Franco-Prussian War. Austria, except for such comparatively small operations as the war against the Begs in Bosnia in the late 'seventies, has had no active warfare since the war with Prussia in 1866.

THE ARMIES OF EUROPE

THEIR NUMBERS, CHARACTER, ARMS, AND THE PROBLEMS BEFORE THEM — THE FORTIFICATIONS AND THE STRATEGY OF THE WAR

BY

FREDERIC LOUIS HUIDEKOPER

[*Mr. Huidekoper, who has followed the principal European armies, is a writer of acknowledged authority on the campaigns of Frederick the Great, Napoleon, and Von Moltke, as well as on military subjects of the day.*—THE EDITORS]

THE war in which all Europe is embarked will undoubtedly be the most gigantic struggle in the history of the world — so gigantic that even the Napoleonic wars will seem like dwarfs in comparison.

To understand the present situation in Europe one must look at the arms and aims of each country in turn.

Ever since the reign of Ivan the Great (1462–1505), Russia has pursued one policy with extraordinary consistency, her effort being to improve herself by close contact with more civilized nations, and to obtain access to the sea, especially in warm waters. The wars which she has waged against Poland, Sweden, the Turks of the Khanate of the Crimea, Prussia, Napoleon, the Turks in 1877–1878, and Japan, her stealthy advance in Central Asia and her intrigues in the Far East, in Persia and the Balkans, are all part and parcel of this policy. She has constituted herself the protectress of the Slavonic people in the Balkans in return for which they may help her to secure Constantinople, the plum upon which she has looked with longing eyes for centuries.

It is an open secret that Russian expansion deliberately plans access to the North Sea over Scandinavia's prostrate nationalism, while at the same time it is reaching for a United Slavic Balkan peninsula, bordering south and eastward on the Adriatic, the Marmora, and the Black Sea, with complete control of their strategic sea-gates, the Bosphorus and the Dardanelles. Germany, geographically inside of Russia's enveloping ambitions, is even more resolved upon an expanding empire, which shall extend eventually from Dutch and Belgian ports on the North Sea, clear through what is now Turkey, along the line of the Bagdad railroad to the Persian Gulf.

Moreover, there is the possibility that if the Austrian Empire breaks up on the death of its present ruler — as has long been expected — the Kaiser or his descendants may become possessed of that territory and the important port of Trieste on the Adriatic. At the present moment, Russia's interests in that part of the continent clash with Austria's. Austria is keenly alive to its need to control the Adriatic, hence her occupation of Bosnia and Herzegovina in 1908, her resolution not to permit the Servians to have the port of Scutari, and her recent creation of the Kingdom of Albania. Her recent stand with respect to Servia is based upon her determination to permit no interference with her rights in that part of Europe.

Back of these Austrian ambitions is the Pan-Germanic idea — the German slogan of the famous March to the East — which is diametrically opposed, as already indicated, to a Russianized Balkans, or powerful Slav-Balkan state.

These facts afford a glimpse into the intrigues of these nations and the struggle between Russia, on the one hand, and Germany and Austria on the other, to obtain the upper hand in the Balkans politically, commercially, and by the effort of each one to introduce its system of military training — all which were discussed at such length in American newspapers during the late war, but without any attempt to throw light on the fundamental reasons from which they sprang.

The map of Europe shows Great Britain separated from the continent by a narrow strip of trouble water which has played a rôle in history only equalled by the Mediterranean. Her security is dependent mainly upon the ability of her fleets to prevent invasion. Her land forces are a secondary consideration. Her task is to defend the British Isles; to protect the carrying trade of the world which is in her hands; to keep open communication with her colonial possessions scattered all over the globe; and to prevent her food supply from abroad from being cut off lest she starve to death.

The main motive in France is revenge for 1870–71 and the reconquest of the lost provinces of Alsace and Lorraine.

European armament and European armies are at the same time the result of these conflicting ambitions, just briefly indicated, and the means by which each nation hopes to satisfy its own territorial hunger at the expense of the other nations.

For the benefit of the uninitiated in military matters, it may be said that almost every great nation has a regular army, and one, two, or three reserves. In time of peace the regular armies

are kept on a reduced, or "peace footing." When war is imminent, they are enlarged to their "war footing" by augmenting them to full strength, either by additional men drawn from the reserves or by recruiting, and by organizing, equipping, and supplying them for active operations in the field. This is known as mobilization. Army affairs are administered by a council presided over by the Minister of War, which includes certain high military officers charged with duties necessary to the proper management of land forces. One of these is the Chief of the General Staff who is nearly always the commander-in-chief in time of war. The General Staff prepares all plans of war, sees to the proper co-ordination of the various branches of the service, and superintends the execution of the plans determined upon. There are two kinds of troops: mobile, and fixed, i.e., stationed in fortifications. The mobile troops are of two sorts: those of the line, i.e., the fighting men, which include the infantry, cavalry, and artillery; and those of the staff. Broadly speaking, the infantry is organized as follows:

THE ORGANIZATION OF AN ARMY

INFANTRY

A squad is 8 men under the command of a corporal.

A section is 16 men under the command of a sergeant.

A platoon is from 50 to 75 men under a lieutenant.

A company is 3 platoons, 200 to 250 men, under a captain.

A battalion is 4 or more companies under a major.

A regiment is 3 or more battalions under a colonel, or a lieutenant-colonel.

A brigade is 2 or 3 regiments under a brigadier-general.

A division is 2 or more brigades under a major-general.

An army corps is 2 or more brigades, supplemented by cavalry, artillery, engineers, etc., under a major-general or lieutenant-general.

CAVALRY

A section is 8 men under a corporal.

A platoon is 36 to 50 men under a lieutenant, or junior captain.

A troop is 3 to 4 platoons, 125 to 150 men, under a captain.

A squadron is 3 troops under a senior captain, or a major.

A regiment is 4 to 6 squadrons under a colonel.

A brigade is 3 regiments under a brigadier-general.

A division is 2 or 3 brigades under a major-general.

ARTILLERY

A battery is 130 to 180 men, with 4 to 6 guns (8 in the Russian army) under a captain.

A group or battalion is 3 or 4 batteries under a major.

A regiment is 3 or 4 groups (battalions) under a colonel.

When regiments are combined into brigades, brigades into divisions, and divisions into army corps, cavalry, artillery, and certain other auxiliary troops, such as engineers, signal corps, aeroplane corps, etc., are joined with them in such proportions as has been found necessary. Every unit, from the company up, has its own supply and ammunition wagons, field hospitals, etc.

In Europe almost every man has done compulsory service with the colors, varying from one to four years, and aside from the usual drills and instruction, has received training in manœuvres, great or small, where the endeavor is made to reproduce the exact conditions which will occur in war. At times, however, even the "grands manœuvres" degenerate into what smacks strongly of opera bouffe, despite every effort to the contrary. The writer vividly recollects a charge of five regiments of French cavalry across nearly 800 yards of absolutely open country against a battery, a battalion of infantry, and a regiment of dismounted dragoons in September last, and the unconcealed disgust of one old soldier who had fought in the battles around Metz in 1870 at what he characterized as "crass idiocy." Even more spectacular was the charge of eighty squadrons of Bavarian cavalry, numbering more than 9,000 men, across about 1,000 yards of open ground against a strong position held by a brigade of Saxon infantry and several batteries, led by the German Emperor in person some years ago. The umpires decided that it was successful, whereat the military attachés smiled and remarked, as did Marshal MacMahon of the charge of the Light Brigade at Balaclava, "*C'est magnifique, mais ce n'est pas la guerre!*" (It is magnificent, but it is not war!) Upon another occasion the Kaiser indulged in a similarly preposterous charge, but upon galloping up to the umpires and inquiring, "How's that?" was greeted with the firm but diplomatic answer, "All dead but one, Your Majesty." It must not be supposed that such license is always the case, for the training is often severe, and in the various schools of musketry the utmost attention is paid to good marksmanship — no nation being more thorough in all that relates to military matters than Germany.

To understand the efficiency of European soldiers and the never-ceasing preparation for war, let us examine the systems of the leading continental powers, beginning with the one which has the greatest reputation.

GERMANY

The German army on a peace footing consists of 31,459 officers and 768,540 men, military service being compulsory and universal with certain exemptions. Liability to service (Wehrpflicht) begins at the age of 17 and ends at 45; actual service (Heerpflicht) commences at 20. With the active army the term of service is seven years, two in the ranks and five in the reserve for the infantry, five in the ranks and four in the reserve for the cavalry and horse artillery. The soldier is permanently attached to some corps, and during his reserve service is

twice summoned for training with it for a period limited by law to eight weeks, but in actual practice rarely six weeks and more usually a month. From the active reserve the soldier passes into the Landwehr or second line army, composed of two "bans," the first of 5 years for the infantry and 3 for the cavalry and horse artillery; the second "ban" of 6 to 7 years, or 8 and 9, for the cavalry and horse artillery. During the first ban there are two periods of training of 8 to 14 days each, in the second none, while the Landwehr cavalry is exempted altogether. The final reserve is the Landsturm — a force purely for home defence — in which the men remain until they have reached the age of 45; in other words, about 6 years. The Landsturm is composed of two "bans," the first comprising all men between 17 and 39 who for any reason have received no military training; the second includes all men, trained or untrained, between the ages of 39 and 45. The German army admits as volunteers for one year only well-educated young men who pay their own expenses and who serve to supply all the Reserve and Landwehr officers. There are also a considerable number of reserve troops intermediate between the active army and the Landwehr, and a supplementary (Ersatz) reserve of young men of 20 who are fit for service but in excess of the required number of annual recruits. They are liable for three periods of training, one of 10 weeks, one of 6 and one of 4, stress being laid on non-combatant duties, although they are also available for depot duty. The object of these various reserves is to keep the active regiments up to full strength and to replace the enormous wastage in men that invariably occurs in war.

In the organization of the German army six battalions form an infantry regiment, two regiments a brigade, two brigades a division, and two divisions an army corps. There are 10 divisions composed of 3 brigades each, and in the event of war it is probable that the other divisions will be similarly augmented. Adding the necessary auxiliary troops, viz: an artillery brigade of 12 batteries composed of 6 guns each — or 4 in the case of the horse batteries — a regiment of cavalry of 4 squadrons, an engineer battalion, sanitary troops, etc., a German 3-brigade division at war strength would number about 21,000, and an army corps — to which are further attached 4 batteries of howitzers and a battalion of rifles — about 43,000 combatants. The cavalry division is composed of 3 brigades of 2 regiments each and 2 or 3 batteries of horse artillery, a total of 24 squadrons and 8 to 12 guns. Twenty-five corps constitute the German army, whose war strength is (1) active army, 1,700,000; (2) Landwehr, 1,300,000; and (3) Landsturm, 1,000,000, a grand total of 4,000,000 men.

The infantry is armed with the Mauser magazine rifle, 1898 model, with a calibre of .311 inches and fires a "spit ball," i.e., one pointed like a pencil. The Mauser has a velocity of 2,700 foot seconds, a point-blank range of about 300 yards, and has adjustable sights for ranges up to 2,000 yards. The cavalry is armed with a Mauser magazine carbine, and all carry lances. The artillery, both field and horse, use a Krupp piece of 1906 model, firing a 15 lb. shell. The field howitzer is a 30-pounder, the heavy howitzer a 94-pounder. The Army Law of 1911 provided for 5 aeroplane battalions numbering 17 companies with about 400 aeroplanes, and that year there were 24 dirigible balloons in the military establishment.

The German General Staff has the reputation of being the most thorough body of its kind in the world. The writer has been told upon excellent authority that Field Marshal von Moltke used to declare that with the declaration of war in 1870 came his rest. The story is characteristic of the preparedness of the German General Staff, but if the plans to which the Germans are so wedded are upset the results may be different from their calculations. As indicative of the rule-of-thumb from which no digression is permitted, every observer of German manœuvres has been struck by the obligation of troops to take the exact position assigned to them quite regardless of whether circumstances have altered conditions and whether the spot is surrounded by enemies. In war such blind adherence to orders might entail annihilation. Moreover, the training instils in the men a dependence upon others, especially the officers and non-commissioned officers which tends to rob them of all initiative; and the most casual observer cannot fail to remark upon the difficulty of the leaders to make the men take and keep open order in skirmishes and attacks, quite in contrast to the French, English, and Americans. The loss of life must necessarily be out of all proportion to the results achieved, as was the case when the Prussian Guard attacked the village of St. Privat on August 18, 1870, and suffered a loss of 30 per cent. in twenty minutes.

The German artillery is distinctly inferior: the French as a weapon, and the Mauser rifle has not such a flat trajectory (i.e. the bullet does not carry so far in a straight line) as the French small-arm at distances above 900 yards. The administration of an army that includes the commissariat, the quartermaster's department, the medical corps, etc., which supply the troops with food and all necessary stores, is only slightly inferior to the French; but its officials whose functions are semi-military and semi-civil, have been subjected for years to the most overweening arrogance on the part of the officers of the line, and it would not be surprising to see revenge play its rôle, especially if the supply system breaks down under defeat.

Germany's railways are admirably suited for military operations in every part of the Empire. There is no lack of arms or ammunition so far as is known, and in the towns

FRENCH BATTALIONS OF THE AIR

THE PRESENT WAR IS THE FIRST VITAL TEST OF AIRCRAFT. THE FRENCH, OF ALL THE NATIONS, HAVE THE LARGEST AND BEST EQUIPMENT OF AEROPLANES

A MODERN ARMORED TRAIN, USED BY THE FRENCH ARMY

Photographed by James F. J. Archibald

THE FRENCH CAVALRY AND FIELD ARTILLERY ARE PROBABLY THE BEST IN EUROPE

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FRENCH INFANTRY ON THE MARCH

NOTWITHSTANDING THEIR CLUMSY UNIFORMS AND HEAVY EQUIPMENT, FRENCH INFANTRYMEN ARE CREDITED *WITH BEING* ABLE TO MARCH FARTHER AND WITH LESS FATIGUE THAN OTHER EUROPEAN SOLDIERS

FIELD GUNS OF THE FRENCH ARTILLERY

OF THE TYPE THAT, IN THE HANDS OF THE BALKAN ALLIES, OUTSHOT THE GERMAN KRUPP GUNS IN THE HANDS OF THE TURKS

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FRENCH INFANTRY IN ACTION

THE DEPENDENCE OF THE FRENCH ARMY IS ON THE SPIRITED CHARACTER AND PERSONAL INITIATIVE OF THE INDIVIDUAL SOLDIERS, WHO SHOW EXCEPTIONAL RESOURCEFULNESS IN THE FIELD

AN ENGLISH FIELD BAGGAGE TRAIN

BRITISH CAVALRY

THE ENGLISH ARMY IS THE ONLY ARMY IN EUROPE MADE UP OF VOLUNTEER RECRUITS

BRITISH FIELD ARTILLERY

THE SOUTH AFRICAN WAR SHOWED THE BRITISH ARMY ITS WEAKNESSES IN COMMISSARIAT AND ITS LACK OF MOBILITY. IT IS BELIEVED THAT THE LESSON WAS NOT LOST

THE COLDSTREAM GUARDS IN SERVICE KIT

ONE OF THE FINEST ENGLISH REGIMENTS, ON THE MARCH IN SOUTH AFRICA

ENGLISH INFANTRY

THE BRITISH REGULAR ARMY CAN BE COUNTED ON, BUT THE EFFICIENCY OF THE TERRITORIALS, WHICH CORRESPOND TO AMERICAN MILITIA, IS PROBLEMATICAL. IN THE BOER WAR, GREAT BRITAIN PUT MORE THAN ONE MILLION MEN IN THE FIELD

GERMAN INFANTRY IN THE FIELD

EVERY DETAIL OF EQUIPMENT AND OF CARRIAGE, FROM THE MARTIAL LOOKING HELMET TO THE ARTIFICIAL "GOOSE STEP" GAIT USED ON PARADE, EMPHASIZES THE STUDIED UNIFORMITY AND PAINSTAKING PRECISION OF GERMAN MILITARY SCIENCE

"AN ARMY THAT RUNS LIKE CLOCKWORK"

THE GERMAN ARMY IS THE MOST THOROUGHLY DRILLED OF ALL ARMIES, AND ITS COMMANDERS PUT THEIR FAITH IN ITS MASS EFFICIENCY DIRECTED BY THE GENERAL STAFF ALONG MINUTELY AND CAREFULLY PLANNED LINES

ALL GERMAN CAVALRYMEN ARE ARMED WITH LANCES

AN AMERICAN MILITARY AUTHORITY HAS CRITICIZED THESE WEAPONS AS OBSOLETE, BUT ADMITS THAT THEY WILL BE EFFECTIVE IF MODERN WARFARE RENEWS FIGHTING AT CLOSE QUARTERS

NEWS GATHERERS FOR THE GENERAL STAFF

BICYCLE, MOUNTED, AND AEROPLANE SCOUTS BRING NEWS TO THE GERMAN STAFF, WHICH IS THE MOST THOROUGH ORGANIZATION OF ITS KIND IN THE WORLD

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GERMAN ARTILLERY IN ACTION

THE GERMANS HOPE IN THIS WAR TO DEMONSTRATE THAT THE KRUPP GUNS FAILED IN THE BALKANS ONLY BECAUSE THEY WERE NOT PROPERLY HANDLED

"A CARAVAN LOADED WITH DEATH"

GERMAN FIELD ARTILLERY MARCHING THROUGH A MOUNTAIN VILLAGE. A PART OF THE 4 MILLION MEN THAT *THE* KAISER CAN PUT IN THE FIELD

THE COSSACK CAVALRY OF THE CZAR

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RUSSIAN INFANTRY, ENCAMPED AND MARCHING

THE RUSSIAN SOLDIER DOES NOT THINK FOR HIMSELF AND THE MANCHURIAN CAMPAIGN SHO THAT HIS OFFICERS DO NOT DO ENOUGH THINKING FOR HIM. DESPITE THIS HE HAS SHOWN THA WILL STAND A TREMENDOUS PERCENTAGE OF LOSS WITHOUT BREAKING

Photographed by James F. J. Archibald

"THE BEAR THAT WALKS LIKE A MAN"

A FAMOUS DESCRIPTION OF THE RUSSIAN SOLDIER, THAT SUGGESTS BOTH HIS MERITS AND HIS DEFECTS. OTHER PICTURES: RUSSIAN FIELD ARTILLERY

RUSSIAN SAPPERS THROWING UP ENTRENCHMENTS

Photographed by James F. J. Archibald

A RUSSIAN PORTABLE SOUP KITCHEN THAT SUPPLIES QUICK RATIONS IN THE FIELD

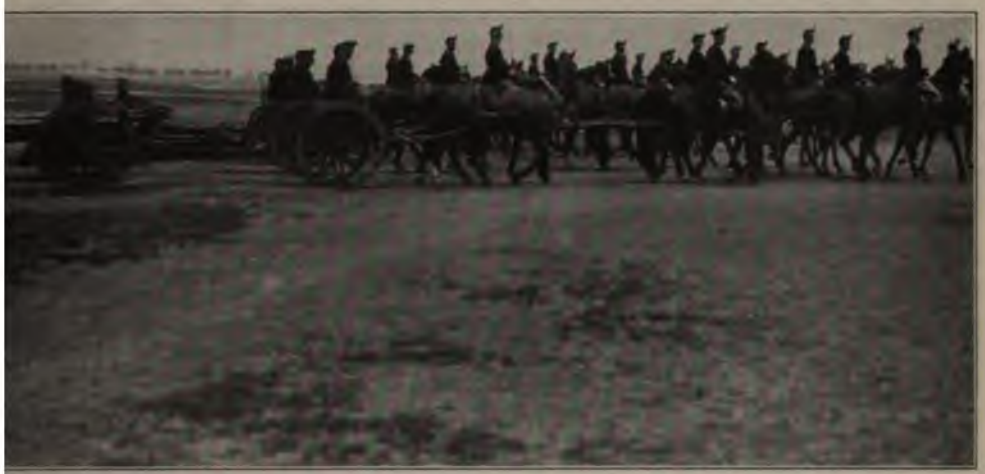
THE FAMOUS SIBERIAN RIFLE CORPS OF THE RUSSIAN ARMY

Photographed by James F. J. Archibald

A RUSSIAN ADVANCE

A FEW OF THE 5,692,000 MEN IN THE RUSSIAN ARMY

TYPES OF AUSTRIAN AND HUNGARIAN SOLDIERS



AUSTRIAN FIELD ARTILLERY AND AUSTRIAN CAVALRY

AUSTRIAN ARMY HAS NOT BEEN THOROUGHLY TESTED SINCE ITS DEFEAT BY PRUSSIA IN 1866; THEORETICALLY ITS EFFICIENCY IS HIGH

AUSTRIAN MOUNTAIN ARTILLERY

Photographed by James F. J.

ITALIAN INFANTRY CROSSING A DANGEROUS PASS

THE NEW EQUIPMENT OF THE AUSTRIAN INFANTRY

SERVIA'S BATTLE-SEASONED VETERANS

UPPER PICTURE: THE BATTLEFIELD OF KUMANOVO. MIDDLE PICTURE: A SERVIAN FIELD HOSPITAL NEAR ADRIANOPLE. LOWER PICTURE: SERVIANS IN CAMP AFTER THE BATTLE OF MONASTIR, FOUGHT DURING THE BALKAN WAR

ENEMIES OF AUSTRIA — MONTENEGRIN TROOPS
ENTERING SCUTARI, OF WHICH AUSTRIA DEPRIVED THEM AFTER THE BALKAN WAR WA

SERVIAN GUNS ON THE MARCH — THE REALITY WITHOUT THE POMP OF

lau, near Berlin, an enormous amount of ıas been stored for years as a war chest. an powder is of excellent quality and fully lant. Supplies are ample for a campaign nths, but if Germany is cut off from the fficulty will be experienced in feeding her ıous armies. Her fortifications are of the and most approved type, heavily armed rovisioned for months, and, unlike France, ıs wisely put her mortars in the first line, ›witzers, the short range guns, in second nd the high power guns in the rear. Each cation is provided with a wireless system ›mmunication with other fortifications, endering it possible for garrisons to unite to harass the enemy temporarily or for ıged operations — a performance hereto- o hazardous that it has been rarely at- ed in the presence of the enemy.

FRANCE

last few years have witnessed an almost ible resurrection in the military spirit of ench. Less than two years ago, when ıny increased her standing army, France tly retaliated by lengthening the term of service from two to three years without ıg so much as a ripple in her internal . She is determined to recover her lost ıces of Alsace and Lorraine, and, if the n of military critics is not woefully at she may be counted upon to put up a des- fight against her German adversary.

"National Army" of France is com- of the "Metropolitan Army" and the ial Army, the former numbering 753,403 ıe latter about 116,000 — 46,000 being in :co and 39,000 in Algeria — a total of 3, exclusive of 25,000 in the Gendarmerie itary police. Military service is compul- nd universal from the ages of 20 to 48, the xemptions being for physical disability. 3 years in the active army, the soldier to the reserve for 11 years, followed by s in the Territorial Army and 7 in the orial Reserve. In the active reserve, the ipt undergoes two periods of training and uvres lasting for 4 weeks each; in the orial Army one period of 2 weeks; in the orial Reserve, no fixed period. Unlike the ıns, the French have no one-year volun- but every encouragement is given for ary enlistment for 3, 4, or 5 years, parti- / in the Colonial Army. The length of serve service produces more than 2,000 ists per battalion, so that in case of mobil- ı, the active units can easily be main- at full war strength and each battalion giment forms an additional reserve unit ıen left over for the depôt. As a neces- recaution, the troops stationed along the n frontier are kept at a considerably strength than the others.

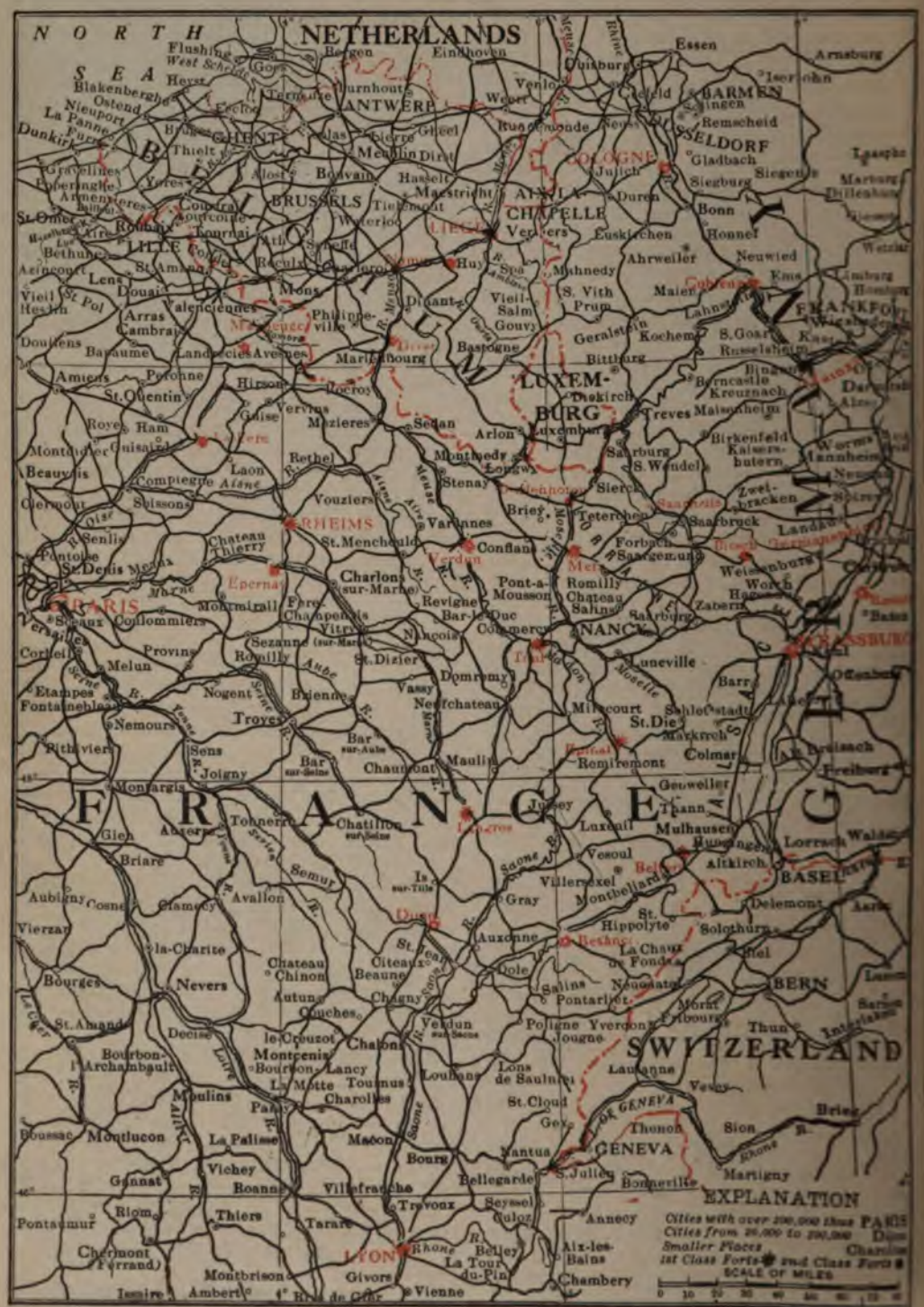
he organization of the French army, two y regiments — composed of 6 or sometimes 7 or 8 battalions — form a brigade, 2 brigades a division, and 2 divisions an army corps. To every division is attached a field artillery regiment of 9 batteries of 4 guns each. The corps artillery includes 9 field and 3 howitzer batteries, to which 6 reinforcing batteries are added upon mobilization, so that each corps on a war footing has 144 guns. Furthermore an army corps in the field has attached to it a cavalry brigade of 2 regiments, 1 chasseur (cavalry) battalion, engineer companies, sanitary and service troops, etc. The cavalry divisions are composed of 3 brigades of 2 regiments each — together with 3 batteries of horse artillery. When mobilized the strength of an army corps is approximately 33,000 combatants, a cavalry division 4,700. There is also an aeronautical corps with 334 aeroplanes and 14 dirigibles.

The French army is localized and territorialized. Of the 21 army corps regions, all except Algeria (the 19th) furnishes a complete army corps. The 8 infantry regiments of an army corps are recruited from their respective regimental districts, but the additional regiment is obtained from the region at large. Like the chasseur battalions, these additional regiments are usually stationed near the eastern frontier, so that the 6th Army Corps at Châlons and the 7th at Besançon are augmented to 3 divisions each.

The Reserve Army has two divisions in each region, corresponding to those in the active army. Upon mobilization the 36 reserve divisions contain virtually the same organization and strength as the troops of the first line. The reserves of the regional regiments, engineers and foot artillery can be utilized for garrisoning the various fortresses to which allusion will be made later. The Territorial Army likewise consists of 36 divisions and garrison troops. Upon mobilization the remaining men of the Reserve and Territorial armies are summoned to the depôts and are available to maintain the field army at war strength. The Customs Corps, the Chasseurs Forestiers, the Gendarmerie (25,000) and the Garde Républicaine (2,992) have also had military training and can be utilized in time of war.

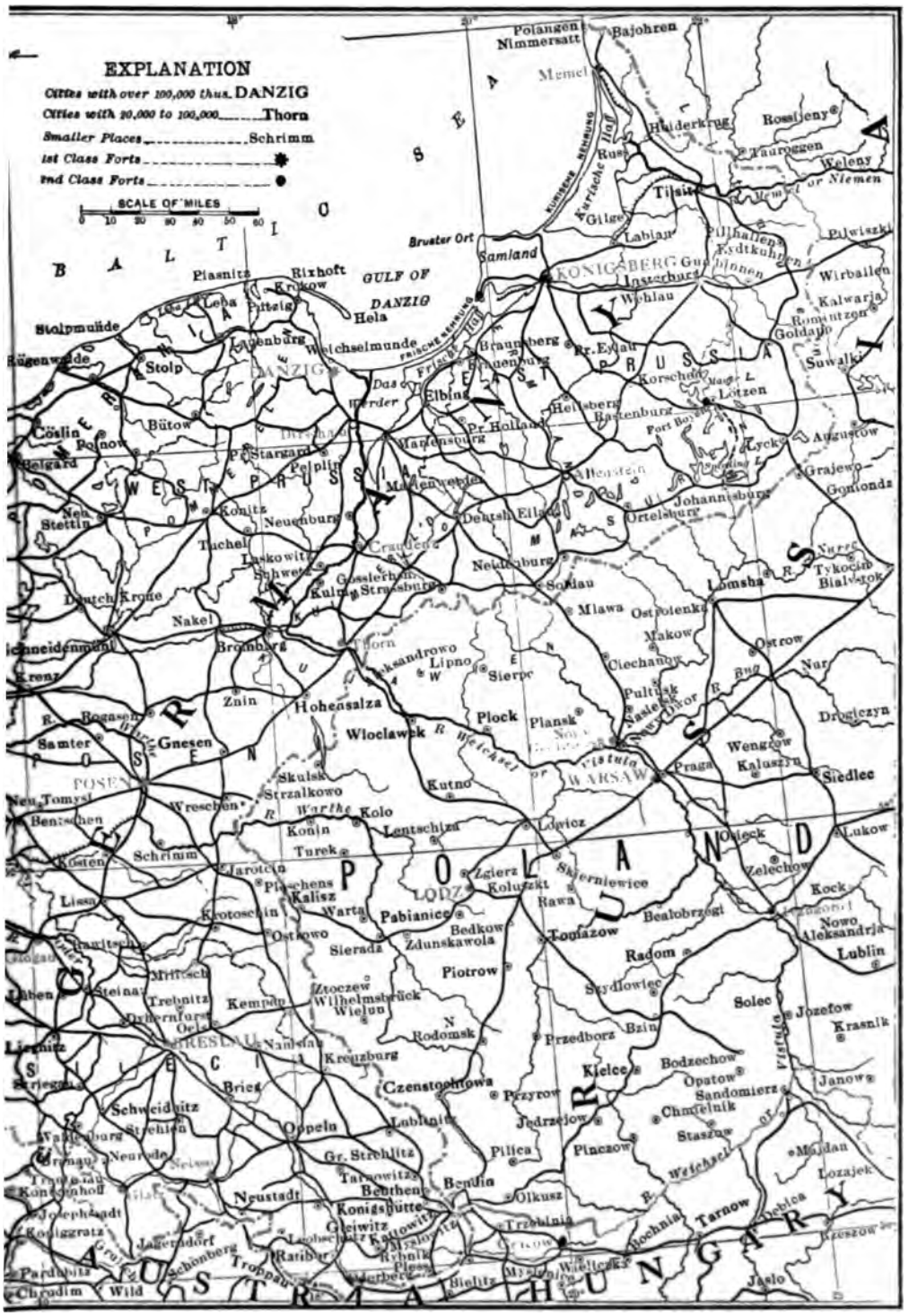
The French field army is composed of 20 army corps, the brigade of 14 battalions stationed at Lyons, and 10 divisions of cavalry. Raised to their full war strength, the active army numbers 1,009,000, the reserves and depôts, 1,600,000, the Territorial army 818,000, and the Territorial reserve 451,000, a grand total of 3,878,000. As a matter of fact, France possesses about 5,000,000 trained men, 1,000,000 more than Germany — a thing which not many people know.

The infantry is armed with the Lebel magazine rifle of .315 inches calibre, the cavalry with the Lebel carbine, both excellent weapons. The field piece is a rapid-fire gun of 7.5 centimetres (2.95 inches) of the model of 1907, provided



THE GERMAN-FRENCH FRONTIER

SHOWING THE FRENCH, GERMAN, AND BELGIAN FORTS. THE HEAVY BLACK LINES ARE RAILROADS AND THE SMALL TOOTHED LINES ARE CANALS



THE RUSSIAN-GERMAN FRONTIER

WHERE SLAV MEETS TEUTON, ON A COMPARATIVELY UNFORTIFIED BORDER WITH MEAGRE TRANSPORTATION FACILITIES. THERE ARE PRACTICALLY NO MOUNTAIN BARRIERS ON THIS FRONTIER

with a shield for protection. The howitzers are of 12 or 15.5 centimetres (1.cm. =.3937 inch).

For many years there existed much uncertainty as to who would command the French army in time of war owing to the fear of a dictator like Louis Napoleon or like General Boulanger attempted to be (February, 1889). In July, 1911, when the Moroccan trouble was at its height and war seemed imminent, it was decided that the power of appointing the commander-in-chief should be taken away from the Conseil Supérieur de la Guerre — which is charged with general military questions under the presidency of the Minister of War — and vested in the Conseil des Généraux, which is composed of the officers commanding the field armies and which has now selected General Joffré for supreme command.

The French artillery is generally admitted to be in a class by itself and the Intendance (commissariat, etc.) is excelled by none other. The infantry is most deceptive in appearance, but the ability of the French to march and attack has never been surpassed. On the other hand, its *forte* is not the defensive, and only last year the writer was struck by the need of firmer discipline and more instruction. The French are peculiar in this respect, but the instant the first shot is fired no soldier rallies quicker to his colors, or is more desperately in earnest than the Frenchman. The cavalry is first class and will give a good account of itself. Its work will be supplemented by the army aeroplane corps and a volunteer aeroplane corps, the latter of which can be counted upon to furnish about 1,000 aeroplanes, which will prove far more than a match for the German aircraft, and ought to keep the commanding generals fully informed of every movement of the enemy. The Minister of War recently stated that there was no provision for the defense of the fortifications against attacks from the air, and there is also some question as to the efficiency of the wireless apparatus installed in the fortresses. The French naval powder is notoriously uncertain and short-lived, but the same cannot be said of the army powder, and so far as is known abroad, there is no shortage in ammunition. The regimental officers are excellent but the French success will be largely measured by the ability of the generals. If they are able to take and keep the offensive, the French will prove a decidedly tough nut for any army in the world to crack.

RUSSIA

The peace strength of the Russian army is 1,284,000 men, its war strength 5,962,306. Military service is compulsory and universal, beginning at the age of 20 and terminating with the end of the 43d year. Service in the active army is for 3 years in the case of the infantry and artillery, for 4 years in the other arms. The soldier then passes into the reserve *(Zapas)* for 14 or 15 years, during which he re-

ceives two trainings of 6 weeks each.
years in the active army and reserv
transferred to the Territorial army (Op
for 5 years. This embraces also the su
the annual contingent, thus forming a
mentary reserve, and, in the second "l
those exempted from service, those n
standard, and the older classes of surpl
There also exists a modified system o
teers for one year who supply the bulk o
required for the reserve upon mobilizat

Owing to the enormous extent of the
empire, its army is divided into thre
the army of European Russia, the
the Caucasus, and the Asiatic army.
sian battalion contains 1,000 men; 4 b
constitute a regiment, 2 regiments a
and 2 brigades a division. The field
are composed of 8 guns, the horse batte
The ordinary army corps is made up c
sions, a howitzer division and one bat
sappers, and has a fighting strength of
mately 32,000 men. The rifle brigad
separateorganizations of 8 battalions wi
teries attached. The Cossacks, who h
lands by military tenure, are liable to
for life, and provide their own equipm
horses. At 19 their training begins; at
enter the active regiment of their distri
the "second category" regiment, and a
"third category" regiment, followed by
in the reserve. After 25 years of ag
training is 3 weeks per annum. In E
Russia the field army consists of the
Guard and Grenadier Corps, 27 line arm
and 20 cavalry divisions; in the Cau
3 army corps and 4 cavalry division
Asiatic army is composed of Russians
few Turkoman irregular horse (jigits)
mainly stationed in East Siberia. Si
Russian-Japanese war these forces ha
increased and re-organized into a stro
which would mobilize as 5 Trans-Baik
and 2 to 4 Cossack cavalry divisions,
ing, together with auxiliary troops, over
men.

The system of recruitment is territor
is, each army corps draws its recruits
fixed district and is usually quartered
sons there. In European Russia the
of the army is stationed west of the k
of Moscow, so that mobilization is slow
ordinary circumstances than in France
many because the recruits and reservi
long distances to travel, particularly
are consigned to corps outside Great
The Tsar cannot mobilize 300,000 of hi
within any theatre of operations und
weeks, although four times that numb
be assembled one week later. The com
dearth of railways is a great handica
matter of supplies.

The small-arm of the infantry is the
rifle of the 1901 model. It has a m
holding 5 cartridges, a calibre of .299 i

le velocity of 2,035 seconds, and is sighted)00 yards. The arm of the cavalry and ıcks has a barrel 2¾ inches shorter but uses ame ammunition, and is provided with a ıet which no other mounted troops use. field piece is a Krupp rapid-fire, shielded ıf the 1902 model, with a muzzle velocity 50 foot seconds, the shell weighing 13½ lbs. linarily speaking, the standard of the Rus- ırmy is distinctly below that of the French ierman. Their small-arm is slightly better our old Krag-Jorgensen, their field piece is or to the French and their movements r, except in the case of the Cossack cavalry ı is no match for other European mounted s. On the other hand, the Russian has 's been a capital fighting man, and too stress cannot be laid upon the value of l experience in war. It is highly doubtful the Russians will encounter any harder ng than they did in Manchuria, and it be remembered that a great many of the rs and men who fought against the Japa- will participate in the present war. The an army will therefore be a potent factor y equation.

AUSTRIA-HUNGARY

stria-Hungary's peace establishment is 16, the war strength of her regular army ,000. Military service is universal and ulsory, beginning at the age of 19 — but usually at 21 — and ending at 43. Service the "Common" or active army lasts for rs in the case of the infantry and 3 for the ry and horse artillery; in the Landwehr reserve) 10 for the infantry and 7 for the ry and horse artillery, followed by the sturm (second reserve) until the soldier's birthday. Hungary possesses a separate distinct Landwehr (Honvéd) and Land- ı (Népfölkelés), which constitute the Hun- n national army. There is also an Ersatz lementary) reserve intended to maintain nits of the Common army at full strength. Ersatz reservists receive 8 weeks training eir first year and are subsequently liable ıe same service as the other reservists of rmy corps to which they belong.

e Empire is divided into 16 army corps cts, each presumed to furnish a complete corps of 2 divisions to the active army. y infantry division is composed of 2 bri- ; of 8 battalions each, 1 artillery brigade of tteries of 6 guns, a regiment of cavalry, a (rifle) battalion, etc. The army corps also ıins a regiment of field artillery or howit- a pioneer battalion, a pontoon company, and numbers about 34,000 combatants. e are 6 permanent cavalry divisions, each sting of 2 brigades (24 squadrons), 3 bat- ; of horse artillery and a machine-gun de- nent and numbering about 4,000 men. It timated that Austria's land forces raised ıeir maximum war strength would be as follows: Common or active army, 1,360,000; Austrian Landwehr, 240,000; Hungarian Landwehr, 220,000; Landsturm, 2,000,000; Ersatz reserve, 500,000; grand total, 4,320,000.

The infantry is armed with the Mannlicher magazine rifle, calibre .315, 1895 model; the cavalry with a carbine of the same make. The field gun, a Krupp, uses a shrapnel of 14½ lbs.; the field howitzer is a 10.5 cm. piece weighing 1,000 lbs. and firing a 30 lb. shell. On a peace footing all batteries have 4 guns, on war footing 6, except the mountain batteries which are provided with 4 guns.

The Hungarian cavalry is admirable; the rest of the army is undoubtedly a good force but scarcely comparable to the French or German armies. It has not fought single-handed since 1866 when it was decisively defeated by the Prussians and their allies at Königgrätz.

ITALY

The Italian army on a peace footing numbers 250,860 officers and men, exclusive of the troops in Africa. Service is compulsory and universal, beginning at the age of twenty. Two years in the permanent army are followed by 6 years in the reserve, 4 years in the mobile militia, and 7 years in the territorial militia. In the reserve they receive from 2 to 6 weeks' training which may be extended over several years; in the territorial militia, 30 days' training. Each division consists of 2 brigades composed of 2 regiments, each of 3 battalions, together with a regiment of field artillery (5 batteries) and has a war strength of 14,156 officers and men and 30 guns. Four regiments divided into 2 brigades and 2 horse batteries comprise a cavalry division. Each army corps has 2 divisions — save the IXth which has 3 — a regiment of field artillery (36 guns), 2 or 3 heavy batteries, a regiment of cavalry and one of Bersaglieri (light infantry). Aside from the Carabinieri or military police and the usual auxiliary troops including the aeronautical corps with 7 companies, 30 aeroplanes, and 9 airships, are the Alpini, frontier troops organized for the defense of the mountain passes, consisting of 8 regiments (26 battalions) of Alpine infantry and 2 regiments of 36 mountain batteries. The field army comprises 12 army corps and 3 cavalry divisions, its war strength is about 2,600,000, divided as follows: active army 700,000, mobile militia 400,000, territorial militia, a large part of whom are only partially trained, 1,500,000.

The Italian infantry is armed with the Mannlicher Carcano magazine rifle of 6.5 millimetres calibre, but the territorial militia still uses the old Vetterli rifle. The field artillery is now being rearmed with the De Port gun with a calibre of 7.5 centimetres of the model of 1912.

The Italian army has recently been engaged in war in Africa, and has doubtless profited by its experience.

It is a compact force and well trained.

Apart from the Indian Army and the Local Forces in the various colonies, the military establishment of Great Britain consists of the Regular Army and the Territorial Army, both being recruited by voluntary enlistment between the ages of 18 and 25. The enlistment is for 12 twelve years, with permission under certain circumstances to prolong it to 21 years. Three to nine years is the period with the colors, and the remainder with the Army Reserve, most men electing to serve 7 years with the colors and 5 in the reserve. Upon mobilization the existing deficiencies are supplied from the Army Reserve or, to a lesser extent, from the Special Reserve of troops not permanently incorporated but who serve as depot troops, or in fortifications, their term of service being for 6 years. The recruits are subjected to 5 months' training and each year are called out for 3 weeks, supplemented by 6 days' musketry practice for the infantry.

The Home Army consists of 9,740 officers and 172,610 men, the Army Reserve of 147,000, the Special Reserve of 80,120, and the Territorial Army of 315,485, a total of 724,955. Raised to war strength these forces would number 29,330 officers, 772,000 men and 2,072 guns, the batteries being of 6 guns, except the heavy batteries and those of the Territorial Army which have 4. The casual reader will probably be surprised at these figures, but he must remember that during the Boer War England put more than a million men in the field. The United Kingdom is divided into seven "commands" and the London district, all of which include from 2 to 3 territorial divisions and 1 to 4 territorial cavalry brigades in addition to detachments of varying size from the Regular Army. Two nearly full divisions are stationed at Aldershot and in Ireland, one complete division in the Southern and one in the Eastern "command." There are also 6 aeroplane squadrons, each with 18 aeroplanes.

The Lee-Enfield rifle, calibre .303, is the arm of the infantry and cavalry. In the Regular Army the field artillery has an 18-pounder Armstrong gun, the horse artillery a 13-pounder, the field howitzers are 40-pounders, and the heavy batteries are armed with 60-pounders.

The British army got a severe handling in the Boer War, and profited greatly thereby. The Territorial Army is a force of distinctly uncertain value at present, being very much akin to the American militia, and could scarcely be expected to distinguish itself if pitted against the French or German regulars.

RUSSIA'S TERRITORIAL AMBITION

TO GAIN ACCESS TO THE ATLANTIC AND THE MEDITERRANEAN UNEMBARRASSED BY A BLOCKING EMPIRE AND TO ABSORB ALL THE SLAVIC PEOPLES

The Belgian army has a peace footing of 3,542 officers and 44,061 men, with a war strength variously estimated at from 300,000 to 350,000. The infantry is armed with the Mauser rifle, the artillery with a shielded Krupp quick-fire piece of 7.5 cm. calibre.

In 1913 the Netherlands had in its Home Army 1,543 officers and 21,412 men and 152 guns. On a war footing it could probably be raised to about 270,000 men. The small arm is the Mannlicher rifle and carbine, the field gun is identical with that of Belgium.

Servia has 10 divisions divided into 4 army corps, with a peace footing of 160,000, and a war strength of over 380,000. The rifle is the Mauser, model of 1899, with a calibre of 7 mm., of which there are not nearly enough to arm the reserves; the field piece a quick-firing gun of the French Schneider-Canet system.

Bulgaria has a peace establishment of about 3,900 officers and 56,000 men, armed with the Mannlicher magazine rifle, calibre .315, the Mannlicher carbine, the Schneider quick-fire gun of 7.5 cm., and a light Krupp of the same calibre for the mountain batteries. On a war footing she could muster 4 army corps and about 550,000 men.

Roumania's army on a peace footing is about 5,460 officers and 98,000 men, on a war footing 5 army corps and approximately 580,000 men. The infantry uses the Mannlicher magazine rifle, .256 calibre, the cavalry the Mannlicher carbine. The field and horse batteries are armed with the Krupp quick-fire, 75 mm. gun of the model of 1903.

In 1912 Greece had a peace establishment of 1,952 officers and 23,268 men, but the recent war has caused her to augment them to 3 army corps and her war footing is not far from 250,000 men. The infantry is armed with the Mannlicher-Schönauer rifle of the 1903 model and the field artillery with Schneider-Canet quick-fire guns.

THE PAN-GERMAN DREAM OF A "MARCH TO THE EAST"

BY WHICH GERMANY AND AUSTRIA WOULD GAIN AN AUSTRIAN-OWNED PATH TO CONSTANTINOPLE AND A GERMAN-CONTROLLED COMMERCIAL HIGHWAY THROUGH GERMAN INFLUENCE IN ASIA MINOR

Few people realize how strongly the frontiers of the Powers of central Europe are fortified — in fact the whole continent bristles with fortifications. Beginning at the point where France, Switzerland, and Germany meet, the eastern frontier of France is guarded by fortresses of the first class at Belfort, Epinal, Toul, and Verdun in the first line, reinforced by Besançon, Dijon, Langres, Rheims, la Fère, and Maubeuge in the second line, with smaller fortifications (forts d'arrets) close to the German frontier at Remirement, Luneville, Nancy, and other points. Along the Italian frontier are

the strong places of Grenoble, Briançon, and Nice, with Lyons in the rear. All her naval harbors are fortified and the defense of Paris consists of 97 bastions, 17 old forts and 38 new advanced forts, the whole forming entrenched camps at Versailles and St. Denis.

The German frontier facing France is guarded by the fortresses of Neu-Breisach, Strassburg, Metz, and Diedenhofen in the first line, with Rastatt, Bitsch, and Saarlouis in the second line, and Germersheim in the rear. Mainz (Mayence) is situated opposite Luxemburg, Coblentz, and Köln (Cologne) opposite Belgium, and Wesel opposite Holland. The northern coast is strongly fortified from Wilhelmshafen to Memmel, the latter forming the ext reme end of the cordon of fortresses which guard Germany's eastern frontier, and which consist of Königsberg and Allenstein in the first line, Danzig, Dirschau, Graudenz, Thorn, and the Vistula Passages in the second line. South of this point are Posen, Glogau, and Breslau facing Poland. Beginning at Neisse the defense against Austria consists of strong fortifications at Glatz, Torgau, Ingolstadt, and Ulm, and the approaches to Berlin are guarded by Mag deburg Spandau, and Küstrin.

Russia is protected against attacks from the Germans by the fortresses of Libau on the Baltic, Kovna, Ossovets, and Ust-Dvinsk (formerly Dünamünd) in the Vilna district, and in Poland by Novo-Georgievsk, Warsaw, and Ivangorod on the Vistula, and Brest-Litovsk on the Bug — four strongholds known as the Polish Quadrilateral. Guarding St. Petersburg are the weaker fortifications of Kronstadt and Viborg, with Sweaborg midway down the Gulf of Finland near Helsingfors. On the Black Sea are Sebastopol and Kertch in the Crimea and Otchokov near Odessa.

Austria's fortifications consist of the strong places of Cracow and Premysl on the road to Lemberg in Galicia, facing Poland; in Hungary she has Gyula-Fehérvár (Karlsburg) and Arad on the Maros River guarding the approach from the angle of Roumania, while on her frontier facing Servia are Alt-Orsova and Pétervárad (Peterwardein) on the Danube, and Sarajevo in Bosnia, with Temesvár and Komorn blocking the approach to Vienna from the southeast. On the Adriatic are Cattaro on the edge of Montenegro, and the naval arsenals of Pola and Trieste. All the Alpine passes of the Tyrol are fortified, but neither Vienna nor Budapest have any defenses.

Italy's fortifications, aside from those on her coasts, extend in a line from Venice, through Verona, Mantua, and Piacenza to Alessandria and Casale which face the French frontier.

GENERAL MILITARY SITUATION

"Strategy consists in getting there first with most men," according to the statement ascribed to General Forrest, a Southern partisan leader, *and a better definition* it would be hard to give. Germany and Austria being in the cen Europe have shorter distances to trave reach any given point on their frontiers t the case with their adversaries who are rated by these two empires. They ca mobilize their forces more quickly than opponents — with the exception of the F — and their combined armies are more l geneous than are the allies. On the other they are inferior in numbers to their adver Germany having 4,000,000, and A 4,320,000, a total of 8,320,000, against 3,87 French, 5,962,000 Russians, 500,000 Ser and 350,000 Belgians, a total of 10,69 Napoleon declared that "the strength army, like the amount of movement i chanics, is estimated as the mass multipli the rapidity," and he demonstrated the method to pursue in situations almost ide with those of to-day. Falling with the u rapidity and all the forces he could n upon one of his adversaries, he inflicted a ing defeat. Leaving a "containing forc that point, he then turned with all his st against the other adversary, repeating h cessive blows in one or both directions un opponents were destroyed. So long as h them asunder their superior numbers a them nothing, and his own success was as once they were permitted to combine, h feat was certain. In such manœuvres the must be kept closely united and moved w possible rapidity, otherwise the advantag ferred by "interior lines" will be wholly l

If the Germans and Austrians are to e being crushed by the mere weight of nu they must pursue a similar course. If elect to attack the French and Belgians, tegic wisdom would require their leavir their eastern frontiers forces of sufficient str to be able, in conjunction with their fort tions, to prevent the Russians and Serbs penetrating in their rear. If they pref attack to the east the operation must b versed. In either case they ought to be al outnumber their adversaries on the east or t on the west, but if they attack in both d tions at the same time, they are sure t defeated by superior forces.

The indications are that a first stroke t east would produce the greater results, sin Russians cannot mobilize under twenty-six at least, and nearly a month must elapse b they are fully ready to begin a forward m ment in any great force. It would therefo possible, if the Germans and Austrian quickly, to inflict a crushing blow upon before they are ready. This might ope road to St. Petersburg — which is no fa from Königsberg than Berlin is from Paris- so long as the German fleet commands th tic, the troops could be largely supplied transports at several points en route. operation while possible under certain tions, would be extremely hazardous. C

hand, in an advance to the west, the most ıtageous lines of advance are from Cob- ıp the Mosel and through Luxemburg, or Cologne through Belgium, issuing either gh Sedan or through the valley of the e into France, at a distance of about 140 from Paris. The violation of Belgium's ality and the opposition of her forces is ɔ be compared to the advantage thus con- l. Furthermore the French fortifications up a veritable hornet's nest, for the Swiss have 500,000 well trained men.

On the eastern frontiers the fortifications — German, Austrian, and Russian — present analogous difficulties but in a far lesser degree. Russia cannot issue from western Poland without exposing her right flank to a German attack from East Prussia, and her left to an attack from Galicia, or Bohemia. The roads into Germany north of Poland are strongly guarded

THE FORTRESSES OF EUROPE

PLACE THAT IS NAMED ON THIS MAP IS A FORTIFIED STRATEGIC SITE THAT IS VITAL TO THE DEFENCE OF THE COUNTRY IN WHICH IT LIES

ing these lines are not so strong as they to be, whereas those from Epernay south lfort will not be easy to break through if rced by the French armies. In this con- ɔn it may be observed that Germany's er from Basle to Luxemburg is 242 miles gth, Luxemburg adds 111 miles, and Bel- 70 miles. With several million men d into this space, and resting on a line of ful modern fortifications, the difficulty of side to break through will be apparent, ially if the troops resort to field entrench- ı, as they undoubtedly will do. Under the nstances, it is difficult to see how Ger- can realize her boast that she will crush e and be in Paris in three weeks, particu- since Victor Emmanuel has not given his ion and Italy cannot be utilized for a di- ıg attack *against southern France.* To *e the neutrality of Switzerland* would stir by fortifications, so that it is probable that she will invade Galicia between Cracow and Lemberg, in the effort to crush the Austrians, or to separate them from the Germans. An advance from any of the Balkan states would be less hazardous but, on the other hand, less productive of results.

Should Italy indefinitely join England, France, and Russia, her 12 army corps in conjunction with Servia's 4 corps could probably neutralize in a large measure Austria's 16 corps and prevent their rendering any material assistance to Germany either by holding the Russians in check or by joining in an attack against France.

Broadly speaking such are the most probable operations to be attempted during the first stage of the war. When the terrific struggle has terminated, the map of Europe — perhaps of certain other portions of the globe — may be materially changed.

THE COLONIAL POSSESSIONS OF THE GREAT POWERS

AS THEY WERE AT THE OPENING OF THE WAR. THESE ARE THE SPOILS OF CONQUEST WHICH THE VICTORS WILL ALMOST CERTAINLY SEIZE AND DIVIDE AMONG THEMSELVES

ASIA, AFRICA, AND THE ISLANDS THE SEAS

WHERE THE FIGHTING EUROPEAN NATIONS MEET IN OTHER CONTINENT DISTANT OCEANS AND HOW THIS STRUGGLE MAY CHANGE THE GEOGRAPHY OF THE WORLD

THE third day of August was the critical day in this world war. Unseen underlying causes had been at work for years, for generations. But in that one week from July 28th to August 4th the curtain rolled up and one after another the nations in their true colors stepped into the theatre of war. In all human history there has never been a spectacle so tremendous.

On the third day of August the Kaiser played his last card. Russia, France, and Servia were already lined up against the Austrian-German alliance. Italy, under her declaration of neutrality, hung yet in the throes of indecision. The one overwhelming element yet uncommitted was the sea power of England. To hold that element neutral, even for a month, would have justified almost any promise Germany could have made. And the price Germany offered is exceedingly significant of the universal stakes for which this war will be fought out to the end. As the price for England's neutrality, Germany offered to guarantee the territorial integrity of Belgium and Holland, and offered to England one half the colonial possessions of France. That was the day of Belgian pluck and British wisdom. On the next day Germany attacked Liège and declared war on England.

When this war is over and the smoke has cleared away conquerors and conquered will come together and settle the price of peace. The largest element in that price will be territory, for in terms of territory are the hostile ambitions of the fighting nations expressed. Nationality and territory, these will be redefined. The map as we have known it is gone.

If in the end Germany and Austria prevail, it is difficult to exaggerate the geographical changes that will follow as a consequence of German supremacy on land and sea. If the ill assorted Anglo-Latin-Slav alliance crushes the imperial German incubus, which has threatened them all these last forty years, territorial changes will be less extensive, but equally fundamental. In the latter case something in the nature of balance of power between the victorious allies will restrict the readjustment after German expansion has been stamped out. In the former case no such thing as the *balance of power*, as it has been hitherto understood among the nations of Europe, will survive. All that can then restrain a vi Germanic imperialism will be a possible dissension following upon a devastati and the creation of a new balance of as between Germany, the United Sta the dominant nation of the Far East. case the most impressive geographical will probably not be made in the map of A nation cannot be wiped off the ma great changes in international geograph made in the colonial possessions of the ing nations. Colonies can be wiped map or painted a different color.

Besides the British Empire of India, three hundred millions of alien pop Great Britain also means the enormou ated territory of Australia and Canad highly improbable, but not impossible of crushing naval reverses for England mean the loss of India. Canada and A would at once become negligible as p England's crippled fortune. So much situation is clear, though in its conse by no means easy to appreciate.

In Africa, Asia, and the islands of the Germany to-day owns 1,134,239 squar of territory, with a population of 14. thoroughly dominated but only partial vinced subjects. Germany is an im colonial empire, even if one does not co German dominance in Asiatic Turkey outpost colonies of trade-controlling G in Spanish-speaking republics of South A Germany's actual territory outside of is five times larger than all the German in Europe. If you will observe on the panying map the disposition of this t over the world you will find some v teresting phases of a general Europe which are not generally understood.

Four fifths of Germany's colonial pos are in Africa. Bordering north on the territory, now made familiar in Ame moving picture expeditions and the bi hunting of our Ex-president, is Germ Africa, almost exactly the size of all our Coast states from Maine to Florida. into British South Africa over on the side is German southwest Africa, gr extent than Spain and Italy combined. north, up the west coast, Germany in th erun and Togoland owns more real est is covered by all of France and the Brit

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for the big guns. The armament consists of 4 12-inch 10 9.2-inch, 24 3-inch rapid fire, and 5 machine guns. They have 5 torpedo tubes.

In 1909 England launched three battleships, *Bellerophon, Temeraire,* and *Superb.*

They are of 18,600 tons displacement, 23,000 horse-power (turbine), and 2,700 tons coal capacity. They have a speed of 21 knots, 11 inches armor belt, and from 8 to 11 inches protection for the big guns. The armament consists of 10 12-inch, 16 4-inch rapid fire and 5 machine guns. They have 3 torpedo tubes.

In 1910 three more ships followed: *St. Vincent, Collingwood,* and *Vanguard.*

They are 19,250 tons displacement, 24,500 horse-power (turbine), and 2,700 tons coal capacity. They have a speed of 21 knots, 9.75 inches of armor belt, and from 8 to 11 inches protection for the big guns. The armament consists of 10 12-inch, 20 4-inch rapid fire, and 6 machine guns. They have 3 torpedo tubes.

In 1911 there were four ships launched, three of them, the *Neptune, Colossus,* and *Hercules* of one type.

They are 20,000 tons displacement, 25,000 horse-power (turbine), and 2,700 tons coal capacity. They have a speed of 21 knots, 11 inches of armor belt, and from 8 to 12 inches protection for the big guns. The armament consists of 10 12-inch, 16 4-inch rapid fire, and 6 machine guns. They have 3 torpedo tubes.

The *Orion,* launched in 1911, and the *Conqueror, Thunderer,* and *Monarch,* of 1912, formed the next type.

They are of 22,500 tons displacement and 27,000 horse-power (turbine). They have a speed of 21 knots, 12 inches of armor belt, and from 8 to 12 inches protection for the big guns. The armament consists of 10 13.5-inch, 16 4-inch rapid fire, and 6 machine guns. They have 3 torpedo tubes.

The *King George V,* of 1912, and the *Centurion, Ajax,* and *Audacious,* of 1913, form the next class.

They are of 23,000 tons displacement, 31,000 horse-power (turbine), and 3,700 tons coal capacity. They have a speed of 21.5 knots, 12 inches of armor belt, and from 8 to 12 inches protection for the big guns. The armament consists of 10 13.5-inch, 16 4-inch rapid fire, and 6 smaller guns. They have 3 torpedo tubes.

This year there are two types. In the first are the *Iron Duke, Marlborough, Emperor of India,* and *Benbow.*

They are of 25,000 tons displacement, 39,000 horse-power (turbine), and 4,000 tons coal capacity. They have a speed of 22.5 knots, 12 inches of armor belt, and 8 to 12 inches protection for the big guns. The armament consists of 10 13.5-inch, 12 6-inch rapid fire, and 6 smaller guns. They have 5 torpedo tubes.

The second type for this year includes the *Queen Elizabeth* and *Warspite.*

They are of 27,500 tons displacement, 58,000 horse-power, (turbine) and 4,000 tons oil capacity. They have a speed of 25 knots, 13.5 of armor belt, and from 8 to 13.5 inches tion for the big guns. The armament con 8 15-inch, 16 6-inch rapid fire, and 12 rapid fire guns. They have 5 torpedo tu

The four last, though possibly not yet for service, are due for completion this ye will of course under the circumstances be hastened to completion. There ar building the *Valiant, Barham,* and *Malay* same type as the *Queen Elizabeth,* ar *Royal Sovereign, Royal Oak, Resolution, illies,* and *Renown,* of 29,000 tons, 44,000 power turbines, and of the same armam the *Queen Elizabeth.* These last eight will not be ready until next year.

Great Britain thus has afloat and rea service sixty battleships, twenty of whi of the *Dreadnaught* or big gun type. I tion to these there are ten battle cruisers to taking their place in the line of ba which nine are now ready and the other so. They are the *Inflexible, Indomitable, cible,* of 17,250 tons displacement and horse-power(turbine), the *Indefatigable,* o tons displacement and 43,000 horse-pow bine): the *New Zealand,* of 18,800 tons, *Australia,* with 19,200 tons displacemen with 44,000 horse-power developed by t engines. All these ships have a spee knots, 8 inches of armor belt, 10 inches protection, and a coal capacity of 2,5 Their armament is 8 12-inch, 16 4-inc fire, 5 machine guns and 5 torpedo tube

The *Lion* and the *Princess Royal,* laur 1912, and the *Queen Mary,* of 1913, are a cept that the *Queen Mary* has 27,000 t placement and 75,000 horse-power.

The other two have 26,350 tons displa 70,000 horse-power, and 3,500 tons coal ity. They have a speed of 28 knot inches of armor belt, and 10 inches pr for the big guns. The armament consi 12-inch, 12 4-inch quick fire and 5 n guns. They have 2 torpedo tubes.

This year's battle cruiser, the *Tig* 28,000 tons displacement, her turbines 110,000 horse-power, she has a speed of 3 10.75-inch armor belt, and 11-inch pr for the big guns. Her coal capacity i tons. She has 8 13.5-inch, 12 6-inch qu and 5 machine guns.

Following these are thirty-four a cruisers of high speed, which may be general service ships, to be used for scou fighting as the case may be. The neither the armament nor protection to them to take a place in the line-of-bat their speed is sufficient to evade action battleships now in actual service. T is as follows:

Completed between the years 1901 ar are the *Cressy, Sutley, Aboukir, Hogu chante,* and *Euryalus.*

They are of 12,000 tons displacement, horse-power, and 1,600 tons coal capacity

peed of 21 knots, 6 inches of side armor, ches protection for the big guns. The nt consists of 2 9.2-inch, 12 6-inch e, 12 3-inch rapid fire, 5 smaller rapid 2 machine guns. They have 2 torpedo

)2–3 the *Drake, Good Hope, Leviathan, g Alfred* were launched.

are of 14,100 tons displacement, 30,000 wer, and 2,500 tons coal capacity. ve a speed of 23 knots, 6 inches of side nd from 5 to 6 inches protection for guns. The armament consists of 2 16 6-inch rapid fire, 14 3-inch rapid naller rapid fire, and 2 machine guns. ve 2 torpedo tubes.

)3–4 were launched *Kent, Essex, Mon- Berwick, Donegal, Lancaster, Cornwall, ind*, and *Suffolk*.

are of 9,800 tons displacement, 2,200 wer, and 1,600 tons coal capacity. ve a speed of 23 knots, 4 inches of side nd 5 inches protection for the big guns. ament consists of 14 6-inch rapid fire, rapid fire, 5 smaller rapid fire, and ie guns. They have 2 torpedo tubes.

)5 the *Antrim, Carnavon, Hampshire, re, Roxburgh*, and in 1906, the *Argyle* nched.

ire of 10,850 tons displacement, 21,000 wer, and 1,800 tons coal capacity. ve a speed of 22.3 knots, 6 inches of and from 5 to 6 inches protection for guns. The armament consists of 4 6 6-inch rapid fire, 24 small rapid fire, iachine guns. They have 2 torpedo

lack Prince, Duke of Edinburgh, Coch- d Natal were launched in 1906, and *lles* and *Warrior* in 1907.

ire of 13,550 tons displacement, 23,500 wer, and 2,000 tons coal capacity. They peed of 22.3 knots, 6 inches of armor 6 inches protection for the big guns. ament consists of 6 9.2-inch, 10 6-inch e, 22 small rapid fire, and 8 machine hey have 3 torpedo tubes.

)8 came the *Shannon, Minotaur* and

ire of 14,600 tons displacement, 27,000 wer, and 2,250 tons coal capacity. ve a speed of 23 knots, 6 inches of armor l 8 inches protection for the big guns. ament consists of 16 6-inch rapid fire, 1 rapid fire, 14 smaller rapid fire, and e guns. They have 5 torpedo tubes.

etails of the actual fighting ships of ice are completed with the following 1 heavily protected cruisers:

(1893), *Endymion* (1893), *Hawke Grafton* (1894), *Theseus* (1894), of is displacement.

iave 12,000 horse-power and 1,250 tons acity. They have a speed of 19.5 inches of protective deck, and 6 inches n for the big guns. The armament consists of 2 9.2-inch, 10 6-inch rapid fire, 17 smaller rapid fire, and 2 machine guns. They have 2 torpedo tubes.

The *Gibraltar, Crescent*, and *Royal Arthur*, of 7,700 tons, have the same speed, armor, and coal capacity. Their armament, however, is 1 9.2-inch, 12 6-inch rapid fire, 19 smaller rapid fire, and 2 machine guns, and 2 torpedo tubes.

The *Terrible* in 1898 was in a class by itself. She is 14,460 tons displacement, 25,000 horse-power, and 3,000 tons coal capacity. She has a speed of 22 knots, 6 inches of protective deck, and 6 inches protection for the big guns. The armament consists of 2 9.2-inch, 16 6-inch rapid fire, 16 3-inch rapid fire, 14 smaller rapid fire, and 2 machine guns.

Between 1899 and 1902 twelve heavily protected cruisers were built, all of 11,000 tons displacement. The *Diadem, Europa, Niobe*, and *Andromeda* had 16,500 horse-power, the *Amphitrite, Argonaut, Ariadne*, and *Spartiate*, 18,000 horse-power.

Each has 2,000 tons coal capacity; a speed of 20.5 knots, 4 inches of protective deck, and 6 inches protection for the big guns. The armament consists of 16 6-inch rapid fire, 12 3-inch rapid fire, 14 smaller rapid fire, and 2 machine guns. They have 2 torpedo tubes.

The first eight of these ships are comparable to our *Saratoga* and *Brooklyn*. The others are larger, but have not higher speed than these two. They could not stand for a moment before any of the classes preceding them.

Following these are eight of 3,600 tons displacement which should be ready this year. They were designed for scouts. They have 37,000 horse-power turbines, and a designed speed of 30 knots. They carry only the light armament of 2 6-inch rapid fire, 6 4-inch rapid fire, and 2 machine guns. Eight more of 8,740 tons of 40,000 horse-power, and 30 knots, with the same armament, the same fuel capacity (of 750 tons of oil) will not be ready until next year. All have a belt of 3-inch steel and 4-inch protection for the guns. They are, of course, in no sense fighting ships, but their rôle is of the utmost importance; that of supplying information regarding the whereabouts of an enemy.

Of the seventy protected light cruisers now ready (twenty-eight of which antedate 1900), varying from 2,135 to 5,880 tons, there are twenty-six with a speed of 25 knots. None carry heavier than 6-inch guns and can be reckoned, for war, chiefly as scouts. No one of them has more than 1,225 tons fuel capacity, and most of them much less. Their radius of action is thus moderate.

One hundred and thirty-four of the 232 completed destroyers are of ocean-going type, and nearly all these are oil-burners and of from 30 to 35 knots. All exceed 700 tons displacement; 70 exceed 800 tons; 40 are about 1,000, and 16 are from 1,200 to 1,350 tons. One, the *Swift*, launched so long ago as 1907, has a dis-

placement of 2,170 tons, 30,000 horse-power, and a speed of 36 knots. All are armed usually with 4-inch guns not exceeding four in number, and the majority carry 21-inch torpedo tubes. Such torpedoes of the best type have a range of more than five sea miles (say six land miles) at an average speed of 24 knots. Great Britain has 75 destroyers and 22 building.

In addition to the ships mentioned, England has at command 3 merchant steamers of more than 25 knots; 4 of from 22 to 25; 11 from 20 to 22, and 29 from 18 to 20. These can all be utilized for cruising, but they can play no real part in the present war except as against like vessels of Germany, which latter is almost equally well off in this respect.

The French navy, though fourth in rank of naval Powers, naturally comes after that of England as an ally. There are on the list eighteen battleships of the older types which can be considered serviceable, ranging in dates of launching from 1894 to 1909. As generally in France not less than four, and often five, years passed from the time of "laying down" to completion, it will be seen that most of these eighteen are by no means modern. Four up-to-date modern ships are, however, completed and are ready for service.

The *Carnot* was launched in 1896. Her displacement is 11,954 tons, her horse-power 15,000, and her coal capacity 700 tons. Her speed is 18 knots, her side armor 17.75 inches, and her big gun protection 13.75 inches. Her armament, like that of the *Masséna*, launched in 1898, is 2 12-inch, 2 10.8-inch, 8 5.5-inch rapid fire, and 28 smaller guns, and 2 torpedo tubes above water, and 2 below. The *Massena's* displacement is 11,735 tons, her horse-power 13,500, and her coal capacity 800 tons. Her speed is 18 knots, her side armor is 17.75 inches, and the big gun protection from 8.5 to 16 inches.

In 1898 France also launched the *Charlemagne*, and *Gaulois*, and in 1900 the *St. Louis*. They are of about 11,000 tons displacement, 14,500 horse-power, and 1,100 tons coal capacity. They have a speed of 18 knots, 14 inches of side armor, and from 8 to 13 inches protection for the big guns. The armament consists of 4 12-inch, 12 5.5-inch rapid fire, 8 3.9-inch rapid fire, 20 smaller guns. They have 4 torpedo tubes.

The *Bouvet* (1898) of 12,000 tons, has 14,000 horse-power, and 800 tons coal capacity; 18 knots speed, 16 inches side armor, and 8 to 14.75 inches of protection for the big guns. She carries 2 12-inch, 2 10.8-inch rapid fire 8 5.5-inch rapid fire, and 19 smaller guns. She has 2 torpedo tubes above water and 2 below water.

The *Suffren* (1903), of 12,527 tons, has 16,200 horse-power, and 1,820 tons coal capacity; 18 knots speed, 11 inches side armor, and 9 to 13 inches of protection for the big guns. She carries 4 12-inch, 10 6.4-inch rapid fire, 8 3.0-inch rapid fire, and 30 smaller guns. She has 2 torpedo tubes above water and 2 below.

The *République* (1906) and *Patrie* (1 14,635 tons, has 18,000 horse-power, a tons coal capacity; 18 knots speed, 1 side armor, and 9 to 13 inches of prote the big guns. She carries 4 12-inch, 18 rapid fire, and 28 smaller guns. Sh torpedo tubes under water.

The *Democratie*, the *Justice*, and th were launched in 1908.

They are of 14,640 tons displacemen horse-power, and 1,825 tons coal c They have a speed of 18 knots, 11 inche armor, and from 9 to 13 inches prote the big guns. The armament consi 12-inch, 10 7.6-inch rapid fire, and 28 guns. They have 2 torpedo tubes.

In 1911 came the *Danton*, *Mirabeau*, *Condorcet*, *Voltaire*, and in 1912 the *Vi*

They are of 18,027 tons displacemen horse-power (turbine) and 2,100 to capacity. They have a speed of 19.2 10 inches of side armor and from 9 to 1 protection for the big guns. The ar consists of 4 12-inch, 12 9.4-inch ra 16 3-inch rapid fire, and 8 smaller guns have 2 torpedo tubes.

The *Jean Bart* and the *Courbet* were l in 1913, and the *France* and *Paris* in

They are of 23,095 tons displacemen horse-power (turbine), and 3,000 to capacity. They have a speed of 2 10½ inches of side armor, and from inches protection for the big gu armament consists of 12 12-inch, 22 rapid fire, and 8 smaller guns.

There are building, to be complete next two years, eight more ships of al same displacement as the four last, six are to have one knot more of speed, wit 12½ inches of side armor and the last 9 to 17 inches of big-gun protection. these ships are to carry 10 13.4-inch g the others 12. None are now ready.

France has no battle-cruisers but has armored cruisers, one of which, the is of but 5,374 tons; one the *Jeanne* 11,092; three, the *Gueydon*, *Montca* *Dupetit Thouars* of 9,367; three (comp 1903), the *Dupleix*, *Desaix*, and *K* 7,578 tons; four, the *Marseillaise*, *Aube*, and *Condé* of 9,856 tons; thre pleted in 1904–1906), the *Leon Gambet* *Ferry*, and *Victor Hugo* of 12,351 to (1908 and 1909) the *Jules Michelet*, an *Renan* of 12,370 and 13,427 tons; a (1910 and 1911), the *Edgar Quinet* ar *deck Rousseau* of 13,780 tons. The he these ships has a designed speed of 23 knots, 6 to 6¾ inches side armor, and protection to their larger guns. The from 2,100 to 2,300 tons of coal. The batteries are generally of 2 7.6-inch ra and 8 6.4-inch rapid fire. The *Gambet* however, carries 4 7.6-inch with 16 6 both rapid fire. The *Edgar Quinet* an *deck Rousseau* carry 14 7.6-inch rapid

BRITAIN'S STRONGHOLD IN ASIA

NG-KONG, CHINA, WHERE THE BRITISH FORCES IN THE EAST MOBILIZED TO PROTECT THEIR POSSESSIONS

GIBRALTAR, THE KEY TO THE MEDITERRANEAN SEA

ITAIN'S MOST IMPORTANT FORTRESS. THE FAMOUS ROCK-CHAMBER BATTERIES APPEAR IN THE PICTURE.

"THE MASTERY OF THE SEAS"

BRITAIN'S NAVAL STRENGTH IS NEARLY TWICE THAT OF GERMANY, HER NEAREST RIVAL

THE "MOLTKE," A GERMAN DREADNAUGHT

OF ABOUT THE SAME CLASS AS THE FRENCH "COUBERT," AND ONE OF THE FASTEST BATTLESHIPS BEING CAPABLE OF MAKING 28 KNOTS

THE BRITISH HOME FLEET STEAMING THROUGH THE SOLENT
FROM LEFT TO RIGHT, THE "KING GEORGE," "THUNDERER," "MONARCH," AND "CONQUEROR"

ONE OF FRANCE'S BIG BATTLESHIPS
HE DREADNAUGHT "COUBERT," WHICH HAS A DISPLACEMENT OF 23,400 TONS AND CARRIES TWELVE 12-INCH GUNS AND TWENTY-TWO 5½-INCH GUNS

BRITISH COAST GUARD MANŒUVRES

TRAINING THE DEFENCE FORCE WHOSE DUTY IT IS TO REPEL INVASION

CLOSING A BRITISH PORT TO FOREIGN WARSHIPS

THESE HUGE BOOMS, MADE OF HEAVY TIMBERS ABOUT THIRTY FEET LONG, LASHED TOGETHER WITH STEEL CABLES, KEEP OUT DESTROYERS AND OTHER SMALL HOSTILE CRAFT

A NIGHT VIEW OF THE BRITISH HOME FLEET

WHEN THE SHIPS ALL TURNED ON THEIR SEARCHLIGHTS DURING THE DEMONSTRATION AT SPITHEAD ON JULY 18, 1914

AN ARMORED TRAIN FOR THE DEFENCE OF THE ENGLISH COAST

PART OF THE SCHEME OF QUICK MOBILIZATION FOR THE PROTECTION OF THE EASTERN COAST

THE GERMAN FLEET WHOSE OFFICERS HAVE OFTEN VISITED THE [illegible]

POSSIBLY THE DECISIVE WEAPONS OF THE WAR

LMAN SUBMARINES IN PORT AT WILHELMSHAVEN, THE GERMAN NAVAL BASE ON THE NORTH SEA. SOME EMINENT AUTHORITIES BELIEVE THAT SUBMARINES HAVE MADE BATTLESHIPS OBSOLETE

A FLOTILLA OF GERMAN DESTROYERS

IN PRACTICE MANŒUVRES IN A HEAVY SEA

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GERMANY'S FOES ON THE WATER

FRENCH AND ENGLISH SAILORS FRATERNIZING ON A FRENCH WARSHIP; AND A GROUP OF RUSSIAN SAILORS

AN AIRSHIP ON A SEA SHIP

A SCOUTING HYDRO-AEROPLANE AND LAUNCHING PLATFORM ON THE DECK OF A BRITISH WARSHIP

› protected cruisers, the *D'Entrecasteaux ıicben*, and 10 light cruisers of no fighting :ance complete the list of French ships. ıce is, however, strong, so far as numbers ı destroyers, topedo boats, and sub- :s, having ready 84 of the first with dis- ıents from 276 to 804 tons and speeds of ł 31 knots. She has 135 torpedo boats 3 submarines, but many of these are of ;ize. One hundred and one of her torpedo are of but about 95 tons, and 20 of the .rines have a displacement of but 67 tons. :an hardly cut any figure except for purely lefence. Thirty-three of the submarines, er, have a surface displacement of 390 2 of 410; 6 of about 550; 2 of 785, and ;0. The surface displacement is usually ıly) about 70 per cent. of the submerged. larger submarines carry from 6 to 8 tor- tubes. Twelve now building of 520 :e) tons displacement have Diesel motors oo horse-power. They are expected to ı surface speed of 17½ knots and a speed knots submerged. This last class will four small guns.

re are attached to the fleet 16 auxiliaries ine layers, submarine destroyers, and ane mother ships, of from 300 to 7,898 half, however, are under 1,000 tons.

sia, since her fateful struggle with Japan, ligently labored to reëstablish her fleet, e has not as yet made any great actual ay. But three of her old battleships were ›m the wreck of the war, the *Tri Sviatit-* he *Panteleimon*, and *Czarevitch*.

Tri Sviatitelia, of 1896 (in the Black Sea), lisplacement of 13,318 tons, 10,600 horse- , a speed of 17 knots, and coal capacity ıo tons. Her side armor is 16 inches and ; gun protection from 12 to 16 inches. She ı2-inch, 10 6-inch rapid fire, and 4 4.7-inch ire guns and 2 torpedo tubes above water. the Black Sea also is the *Panteleimon* , of 12,480 tons, has 10,600 horse-power, 250 coal capacity, 17 knots speed, 7 to 9 of side armor, and 10 to 12 inches of tion for the big guns. She carries 4 12- 16 6-inch rapid fire, 14 3-inch and 28 r guns. She has 5 torpedo tubes under

Czarevitch (1902), of 12,912 tons, has horse-power and 1,360 tons coal capac- ł knots speed, 10 inches side armor, and ı inches of protection for the big guns. .rries 4 12-inch rapid fire, 12 6-inch rapid › 3-inch rapid fire, and 28 smaller guns. ıs 2 torpedo tubes under water.

Slava (1906), of 13,516 tons, has 16,000 power and 1,250 tons coal capacity; 18 speed, 10 inches side armor, and 8 to 11 of protection for the big guns. Her ıent is the same as that of the *Czarevitch*.

Ivan Zlatoust (1910) and the *Elstafi* are both in the Black Sea.

v are 12,733 tons displacement, 10,600 power, and 1,400 tons coal capacity. They have a speed of 16 knots, 7 to 9 inches of armor belt, and from 10 to 12 inches protection for the big guns. The armament consists of 4 12-inch, 4 8-inch, 12 6-inch rapid fire, 14 3-inch rapid fire, and 8 smaller guns. They have 5 torpedo tubes.

In 1911 the *Andreas Pervozvanni* and the *Imperator Pavel I* were launched.

They are of 17,200 tons displacement, 17,600 horse-power, and 3,000 tons coal capacity. They have a speed of 18 knots, 6 to 11 inches of side armor, and from 10 to 12 inches protection for the big guns. The armament consists of 4 12-inch, 14 8-inch, 20 4.7-inch rapid fire, and 14 smaller guns. They have 5 torpedo tubes.

There are altogether six armored cruisers, none of which are in the Black Sea.

The *Rossia* (1898), of 12,130 tons, has 18,000 horse-power and 2,500 tons coal capacity; 20 knots speed, 5 to 10 inches side armor, and 2 inches of protection for the big guns. She carries 4 8-inch, 22 6-inch rapid fire, 12 3-inch rapid fire, and 36 smaller guns. She has 5 torpedo tubes above water.

The *Gromoboi* (1901), of 12,336 tons, has 18,000 horse-power and 2,500 tons coal capacity; 20 knots speed, 6 inches side armor, and 2 to 6 inches of protection for the big guns. She carries 4 8-inch, 22 6-inch, 20 3-inch, and 31 smaller guns. She has 2 torpedo tubes above water and 2 below.

The *Rurik* (1907), of 15,170 tons, has 19,700 horse-power, and 2,000 tons coal capacity; 21 knots speed, 6 inches side armor, and 8 inches of protection for the big guns. She carries 4 10-inch, 8 8-inch, 20 4.7-inch rapid fire, and 18 smaller guns. She has 2 torpedo tubes under water.

The *Admiral Makharoff* was launched in 1907, and the *Pallada* and *Bayan* in 1911.

They are of 7,900 tons displacement, 16,500 horse-power, and 1,020 tons coal capacity. They have a speed of 21 knots, 4 to 8 inches of side armor, and from 3 to 7 inches protection for the big guns. The armament consists of 2 8-inch, 8 6-inch rapid fire, 20 3-inch rapid fire, and 7 smaller guns.

There are eight cruisers, of from 3,100 to 6,700 tons, of no fighting value however. These are the *Askold* (at Vladivostok), *Diana*, *Aurora*, *Kagul* (Black Sea), *Oleg*, *Pamyat Merkurya* (Black Sea), *Zemtchug* (Vladivostok), and *Almaz* (Black Sea.)

Russia has but 14 torpedo boats, all small and of little value. She is, however, fairly well off as to destroyers and submarines. She has 91 of the former, 34 of which exceed 500 tons in displacement, and ten are more than 1,000. About thirty of these destroyers are in the Black Sea and six at Vladivostok. Of the 55 submarines built or building, 37 are completed. Twenty-two, however, are under 135 tons surface displacement; twelve are of 360 tons or more, rising to 500.

Turning to the three Powers of the other alliance (though Italy at the moment of writing is not yet involved in the war), Germany

of course has easily the lead, with 36 battleships, 5 battle cruisers, 9 armored cruisers, and 43 cruisers, as her sea fleet. She also has, complete, 130 destroyers and 27 submarines. Her 16 torpedo boats are too small to be of value, her attention being given, very wisely, to the destroyer instead. The following is the list of her battle fleet:

The *Kaiser Friedrich III* (1898), *Kaiser Wilhelm II*, (1900), *Kaiser Wilhelm der Grosse* (1901), *Kaiser Karl der Grosser* (1901), *Kaiser Barbarossa* (1901) form the first type.

They are of 10,614 tons displacement, 13,000 horse-power, and 1,050 tons coal capacity. They have a speed of 18 knots, 12 inches of side armor, and 10 inches protection for the big guns. The armament consists of 4 9.4-inch, 14 5.9-inch rapid fire, 12 3.4-inch rapid fire, and 20 smaller guns. They have 5 torpedo tubes.

The second type includes the *Wittelsbach*, *Wettin*, *Zähringen*, launched in 1902, and the *Schwaben* and *Mecklenburg* of 1903.

They are of 11,643 tons displacement, 14,000 horse-power, and 1,450 tons coal capacity. They have a speed of 18 knots, 9 inches of side armor, and 10 inches protection for the big guns. The armament consists of 4 9.4-inch, 18 5.9-inch rapid fire, 12 3.4-inch rapid fire, and 20 smaller guns. They have 1 torpedo tube above water, and 5 under water.

In 1904 the *Braunschweig* was launched, the *Elsass*, *Hessen*, and *Preussen* in 1905, and the *Lothringen* in 1906.

They are of 12,997 tons displacement, 16,000 horse-power, and 1,800 tons coal capacity. They have a speed of 18 knots, 9.75 inches of side armor, and 11 inches protection for the big guns. The armament consists of 4 11-inch, 14 6.7-inch rapid fire, 12 3.4-inch rapid fire, and 20 smaller guns. They have 1 torpedo tube above water and 2 below.

In 1906, 1907, and 1908 Germany built the *Deutschland*, *Hannover*, *Pommern*, *Schlesien*, and *Schleswig-Holstein*.

They are of 12,997 tons displacement, 16,000 horse-power, and 1,800 tons coal capacity. They have a speed of 18 knots, 9.75 inches of side armor, and 11 inches protection for the big guns. The armament consists of 4 11-inch, 14 6.7-inch rapid fire, 22 3.4-inch rapid fire, and 8 smaller machine guns. They have 6 torpedo tubes.

In 1909 and 1910 Germany built two ships a year, the *Nassau* and *Westfälen* in 1909 and the *Rheinland* and *Posen* in 1910.

They are of 18,600 tons displacement, 20,000 horse-power, and 2,700 tons coal capacity. They have a speed of 19.5 knots, 9.75 inches of side armor, and 11 inches protection for the big guns. The armament consists of 12 11-inch, 12 5.9-inch rapid fire, 16 3.4-inch rapid fire, and 2 smaller guns. They have 6 torpedo tubes.

In 1911 three ships were launched, the *Ostfriesland*, the *Heligoland*, and the *Thuringen*. In 1912 there was but one, the *Oldenburg*.

They are of 22,440 tons displacement, 25,000 horse-power, and 3,000 tons coal capacity. have a speed of 20.5 knots, 11 inches c armor belt and 11 inches protection for t guns. The armament consists of 12 1: 14 5.9-inch rapid fire, 14 3.4-inch rapi and 2 smaller guns. They have 6 t tubes.

In 1913 there were five battleships: the *rich der Grosse*, *Kaiser*, *Kaiserin*, *König*. *Prinz Regent Luitpold*.

They are of 24,310 tons displacement, horse-power (turbine), and 3,600 ton capacity. They have a speed of 21 kn inches of side armor, and 11 inches prot for the big guns. The armament consist 12-inch, 14 5.9-inch rapid fire, 12 3.4-inch fire, and 2 smaller guns. They have 5 t tubes.

For 1914 there are the *Markgraf*, the *Kurfürst*, and the *König*.

They are of 26,575 tons displac 35,000 horse-power (turbine). They h speed of 22 knots, 13 inches of side arm 13 inches protection for the big guns. Th ament consists of 10 14-inch, 14 5.9-inch fire, 12 3.4-inch rapid fire, and 2 smaller They have 5 torpedo tubes.

The *Von der Tann* (1910), of 19,400 to 43,000 horse-power (turbine), and 2,80 coal capacity; 25 knots speed, 4 to 6 inch armor, and 8 inches of protection for t guns. She carries 8 11-inch, 10 5.9-inch fire, and 16 3.4-inch rapid fire guns. S 4 torpedo tubes.

The *Moltke* (1911) and *Goeben* (1912), of tons, have 52,000 horse-power (turbine 3,100 tons coal capacity; 25.5 knots speed inches side armor, and 8 inches of protect the big guns. They carry 10 11-inch, inch rapid fire, and 12 3.4-inch rapid fire They have 4 torpedo tubes.

The *Seydlitz* (1913) is the same as the except its displacement is 24,610 tons horse-power 63,000.

The *Derflinger* (1914) of 28,000 ton 100,000 horse-power (turbine), and 30 speed; 9¾ inches of side armor. Her arm is unknown except that she has 6 torpedo

The *Fürst Bismarck* (1900) of 10,570 to 14,000 horse-power and 1,250 tons coal ca 19 knots speed, 4 to 8 inches side arm 8 inches of protection for the big guns. S ries 4 9.4-inch, 12 5.9-inch rapid fire, 10 3 rapid fire, and 18 smaller guns. She has pedo tube above water and 2 below.

Prinz Heinrich (1902) of 8,759 ton 15,000 horse-power, and 1,500 tons coal ca 20 knots speed, 2 to 4 inches side armor, a 6 inches of protection for the big guns carries 2 9.4-inch, 10 5.9-inch rapid fire, inch rapid fire, and 14 smaller guns. Sh torpedo tube above water and 2 below.

The *Prinz Adalbert* (1903) and *Friedri* (1904) of 8,858 tons, have 18,500 horse- and 1,500 tons coal capacity; 21 knots spe 4 inches side armor, and 4 to 6 inches of p

for the big guns. They carry 4 8.2-inch, 9-inch rapid fire, 10 3.4-inch rapid fire, and naller guns. They have 1 torpedo tube above r and 3 below.

ıe *Roon* and the *Yorck* (1905), of 9,350 tons : 19,000 horse-power, and 1,600 tons coal city; 21 knots speed, 3 to 4 inches side ɔr, and 4 to 6 inches of protection for the guns. They carry 4 8.2-inch, 10 5.9-inch d fire, 16 3.4-inch rapid fire, and 14 smaller . They have 4 torpedo tubes.

ıe *Scharnhorst* (1907) and *Gneisenau* (1908) 1,420 tons, have 26,000 horse-power, 22.5 s speed, 4 to 6 inches side armor, and 6 to inches of protection for the big guns. They / 8 8.2-inch, 6 5.9-inch rapid fire, 20 nch rapid fire, and 18 smaller guns. They : 4 torpedo tubes.

ıe *Blücher* (1909), of 15,550 tons, has 32,000 e-power, 24 knots speed, 4 to 6 inches side ɔr, and 6 inches of protection for the big . She carries 12 8.2-inch rapid fire, 8 5.9- rapid fire, 16 3.4-inch rapid fire. She has pedo tubes.

ıe *Magdeburg*, *Breslau*, *Strassburg*, and *Stral-* were launched in 1912.

ıey are of 4,478 tons displacement, 22,300 ;,000 horse-power (turbine), and 1,200 tons capacity. They have a speed of 26.75 knots, :hes of side armor, and 3 inches protection :he big guns. The armament consists of 1-inch rapid fire, and 2 machine guns. They : 2 torpedo tubes.

ıe *Karlsruhe* and *Rostock* were launched in . They are of 4,820 tons displacement, 30,000 e-power (turbine), and 1,300 tons coal capa- They have a speed of 26.75 knots, 4 inches de armor, and 3 inches protection for the guns. The armament consists of 12 4.1- rapid fire, and 2 machine guns. They have ırpedo tubes.

ıough these are reckoned by an English ority as armored cruisers, their armor, and icularly their gun protection, is too slight ring them properly in the category. They really scouts and of a high quality, as on · trials they were nearly a knot to two knots ·e their designed speed, the *Strassburg* show- :8.8. Some of the next class, the protected ;ers, 39 in number, have practically equal e as scouts, the *Kolberg*, *Mainz*, *Köln*, and *sberg*, of 4,281 tons, with turbines of 19,600 e-power, showing on trial from 26.32 to 3 knots, and 28 of them from 21 to 24.

ermany is unusually strong in destroyers, hich she has 143. Forty-two of these are ı 350 to 413 tons; 5 of 480; 13 from 530 to 47 of about 650; 36 of 840 and 900 tons. ıg with these are 27 submarines, 16 of which : a surface speed of 18 knots and 12 under :r. What is known as the type U21, one 'hich passed into service last year, has a th of 213 feet 8 inches, and 20 feet beam. ustria, Germany's supporter, has nine leships ready, all which have been com- :d since 1905, as follows:

In 1906 the *Erzherzog Karl* and *Erzherzog Friedrich* were launched, and in 1907 the *Erzherzog Ferdinand Max*.

They are of 10,433 tons displacement, 14,000 horse-power, and 1,315 tons coal capacity. They have a speed of 19.25 knots, 6 to 8.25 inches of side armor, and 9.5-inches protection for the big guns. The armament consists of 4 9.4-inch, 12 7.6-inch rapid fire, 14 3-inch rapid fire, and 16 smaller guns. They have 2 torpedo tubes.

In 1910 came the *Erzherzog Franz Ferdinand*, and in 1911 the *Radetzky* and *Zrinyi*

They are of 14,268 tons displacement, 20,000 horse-power, and 1,200 tons coal capacity. They have a speed of 20 knots, 9 inches of side armor, and 9.75 inches protection for the big guns. The armament consists of 4 12-inch, 8 9-inch, 20 3.9-inch rapid fire, 6 smaller rapid fire, and 2 machine guns. They have 3 torpedo tubes.

In 1912, the *Viribus Unitis* was launched, in 1913 the *Teggethoff* and the *Prinz Eugen*.

They are of 20,000 tons displacement, 25,000 horse-power, and 2,500 tons coal capacity. They have a speed of 20 knots, 11 inches of side armor, and 11 inches protection for the big guns. The armament consists of 12 12-inch, 12 5.9-inch rapid fire, 18 14-pounder rapid fire, and 4 smaller guns. They have 4 torpedo tubes.

The *Kaiserin Maria Theresia* (1895), of 5,187 tons, has 9,000 horse-power and 740 tons coal capacity; 19 knots speed, 4 inches side armor, and 4 inches of protection for the big guns. She carries 2 7.6-inch rapid fire, 8 6-inch rapid fire, and 22 smaller guns. She has 4 torpedo tubes above water.

The *Kaiser Karl VI* (1900), of 6,151 tons, has 12,000 horse-power and 820 tons coal capacity; 20 knots speed, 8.5 inches side armor, and 8 inches of protection for the big guns. She carries 2 9.4-inch, 8 6-inch rapid fire, and 28 smaller guns. She has 2 torpedo tubes above water.

The *St. Georg* (1906), of 7,185 tons, has 12,300 horse-power and 1,000 tons coal capacity; 21 knots speed, 6.5 inches side armor, and 5 to 8 inches of protection for the big guns. She carries 2 9.4-inch, 5 7.6-inch rapid fire, 4 6-inch rapid fire, and 17 smaller guns. She has 2 torpedo tubes.

The ten light cruisers of Austria, varying in size from 1,506 tons to 3,966, call for no particular remark excepting the two last completed: the *Admiral Spaun*, of 3,500 tons, 20,000 horse-power, and 27 knots, and the *Saida*, of the same tonnage, but of 25,000 horse-power and (probably) 28 knots. Both have turbine engines. Their chief value in war could be only as scouts.

There are 18 destroyers; 12 of 384 tons with 28½ knots speed, and 6 of 800 tons and 32½ knots. These latter carry 4 12-pounders and two 21-inch torpedo tubes. They have oil fuel.

Of the 63 torpedo boats, 33 are of 250 tons and 24 of 197 tons, and are thus capable craft of their kind. The rôle of such can only be, as a rule, that of inshore work.

The six submarines are of but moderate size, ranging from 216 to 235 tons at the surface.

THE KAISER AND THE "MAILED FIS

BLOOD AND IRON — MANILA BAY — THE KRUGER TELEGRAM — BOSNIA HERZEGOVINA — AGADIR — AND THEN THE DELUGE

THERE is an explanation of the "blood and iron" policy of Germany, of the "mailed fist" of the Kaiser, of what Mr. H. D. Wells calls "that tramping, drilling foolery in the heart of Europe that has arrested civilization and darkened the hopes of mankind for forty years — German imperialism and German militarism." The explanation is in the history of the rise of Prussia. Bismarck lifted Prussia from a second rate member of the German Confederation, which was dominated by Austria, to a first place among the German states and then formed around it a new nation — Germany, and made that nation one of the great powers of the world. Bismarck believed in autocracy, he believed in "blood and iron," in the "mailed fist." He achieved his success by war, deliberately planned, prepared for and efficiently carried out.

Look closely at the lessons of war and diplomacy which Emperor William inherits from his grandfather and the Iron Chancellor.

In 1862, Emperor William I, the grandfather of the present ruler, was struggling to get the Prussian Diet to grant him money to double the size of his army. He had been unsuccessful in this effort. He was about to give it up when as a final experiment he consented to invite into his ministry the then young reactionary leader, Otto von Bismarck. Bismarck's political ideas centred around the belief in the Prussian monarchy. It had been the Prussian kings, not the Prussian people that had made Prussia great. Bismarck believed in the king and disbelieved in the people. He hated democracy. He also believed in war as a means of national progress. In the most famous speech of his life in 1863 he announced "Not by speeches and majority votes are the great questions of the day decided — but by 'blood and iron.'" These are the views of the man from whom the present Emperor learned his statecraft.

In 1863, Prussia and Austria went to war, a war chiefly of Bismarck's contriving, against Denmark and took the duchy of Lauenburg and the provinces of Schleswig and Holstein, in which the Kiel Canal and the German naval base is now. Austria was to administer Holstein and Prussia, Schleswig. Prussia paid Austria $1,800,000 for the duchy of Lauenburg. Bismarck approved this whole arrangement because he thought it would lead to war with Austria, and it was a part of his "blood and iron" policy that a German nation under Prussian domination could come only *after a war* with Austria. There was not room in a German Confederation for both and Prussia — "one or the other must Within a year after the division of Sc Holstein, Bismarck had obtained a from Napoleon III to remain neutral if attacked Austria. He also made a trea Italy providing that Italy would join in a war on Austria if Prussia began t within three months for the sake of ref the German Confederation. The ener thus isolated, and Prussia was prepared both "blood and iron." Bismarck imm and quite unexpectedly introduced i Diet of Frankfort, the governing body German Confederation, a new plan federation of German states. With th background, to satisfy the Italian trea marck picked a quarrel with Austria administration of Holstein, declared confederation dissolved, attacked Austr invited the other German states to do l None of the other important states sid Prussia. Four of them stood with But Prussia was prepared, trained an for war. In seven weeks Austria was d and soon after all Germany was at the of the Prussians.

Prussia now annexed the kingdom c over, four duchies and the free city of Fra bringing under the Prussian king pra all the peoples and land along the nort from the Russian border to the border land. There was no thought of hav people of these states vote on the que annexation as had been done in Italy. were annexed by the right of conquest crees issued from Berlin, where one ki ruled by "divine right" deposed two c others whose thrones were similarly b up. Thus increased, Prussia became th in a new German Confederation which i all but four German states and from Austria was excluded.

The "blood and iron" policy had triu Prussia had humbled Austria and beco dominant power in Germany. Yet G was not united. The four southern still were outside the Confederation. S was need for more "blood and iron." marck believed a war between Fran Prussia inevitable and (Hazen's "Europ 1815," pp. 289–290) "in his opinion it sirable as the only way of completi unification, since Napoleon III would willingly consent to the extension of th federation to include the South German All that he desired was that it should c

sely the right moment, when Prussia was ly ready, and that it should come by act rance, so that Prussia could pose before pe as merely defending herself against a on aggressor. In his "Reminiscences" he s that he entertained his belief as early as

'That a war with France would succeed ar with Austria lay in the logic of history;' again, 'I did not doubt that a Franco-an war must take place before the con-tion of a United Germany could be real-

The unification of Germany being his me aim, he was bound by logic and am-n to see that that war occurred."

xplains frankly in his "Reminiscences" how ought the war about. There was a delicate matic situation between Prussia and ce in 1870 which arose over the succession to panish throne. The King of Prussia was ns. The French ambassador went to see and made certain demands. The Em- telegraphed these to Bismarck saying he could use his discretion about publish-hem. Von Moltke and Roon, the great ian soldiers, were with Bismarck when elegram came. They were in a dejected l for they saw no chance of war. Then, says arck, "I reduced the telegram by striking ords but without adding or altering. . . . I read out the concentrated edition to my guests Moltke remarked: 'Now it has a ent ring; it sounded before like a parley; it is like a flourish in answer to a challenge.' nt on to explain: 'If in execution of his sty's order I at once communicate this which contains no alteration in or addition e telegram, not only to the newspapers, also by telegraph to all our embassies, it be known in Paris before midnight, and nly on account of its contents, but also on nt of the manner of its distribution, will the effect of a red rag upon the Gallic Fight we must if we do not want to act part of the vanquished without a battle. ess, however, essentially depends upon the ession which the origination of the war s upon us and others; it is important that ould be the party attacked, and this Gallic veening and touchiness will make us if nnounce in the face of Europe, so far as we vithout the speaking tube of the Reichstag, we fearlessly met the public threats of ce.' He adds that 'this explanation ght about in the two generals a revulsion more joyous mood, the liveliness of which ised me.'"

e trick had its desired effect. France de-d war against Prussia. The ever ready d and iron" were loosed again.

erything was as Bismarck wished. The h German states joined Prussia. The ch were defeated quickly and completely. ss than six months, after the opening gun fired, on January 18, 1871, King William irst was crowned Emperor of a united Ger-y, the four southern states had joined the Empire, and Alsace and Lorraine had been annexed to Prussia.

In less than ten years the great Chancellor had turned a second rate German state into an Empire, a first class power among the nations of the world. He did it by "blood and iron," by unscrupulous diplomacy backed by the best trained army in Europe, and by unhesitatingly throwing the country into war where the army could be used.

The present Emperor inherited German militarism and German Imperialism, a belief in the divine right of kings and the strength of the German Army. The lessons of the history of his country and of his family are plain. Germany was built by "blood and iron."

On his accession to the throne, in the speech he made to the army and navy three days before his speech to the people, he reiterated Bismarck's doctrine in these words:

"The soldier and the army, not parliamentary majorities, have welded together the German Empire. My confidence is placed on the army."

At the centenary of the firm of Krupp, at Essen, the Emperor said:

"The history of this firm is a piece of Prussian and German history. Krupp guns have been with the Prussian lines and have thundered on the battlefields which made ready the way to German unity and won it at last."

William II broke with the great Chancellor, not because he believed more in the people than Bismarck, but because he believed so much in the rule by divine right that he was unwilling even to be overshadowed by the Chancellor who had made the Empire.

Bismarck's use of "blood and iron" made Germany the strongest nation on the European continent. But he recognized very clearly that "blood and iron" was a policy to be used with great care. Before every one of the three wars he precipitated he was careful to do two things: (1) to isolate the country he was going to attack by arrangements that would keep other nations from interfering with his war and (2), be certain that his army was better prepared than the enemy.

This was the game that Bismarck played by which he achieved the great ambition of his life — the unification of Germany.

Emperor William has an even larger vision. "Our future is on the water," he announced. "The more the Germans go upon the water the better it will be for us." This announcement was in 1901. But the date of the first naval programme was 1893, three years after Bismarck's retirement. The Kiel Canal was opened in 1895. To further his imperialism, the Emperor has used the "mailed fist," the threat of his army rather than the army itself. It is interesting to see what the Kaiser's imperialism, backed by the "mailed fist," has achieved, and its influence in the present crisis.

PRUSSIA UP TO 1863

THE KINGDOM WHEN BISMARCK BECAME CHANCELLOR TO KING WILLIAM I — A DIVIDED STATE, A MEMBER OF THE GERMAN CONFEDERATION WHICH WAS DOMINATED BY AUSTRIA UNDER FRANCIS JOSEPH II THE PRESENT RULER

PRUSSIA AT THE END OF 1864

THE FIRST "BLOOD AND IRON" WAR IN AUSTRIA AND PRUSSIA TOOK THE DANISH PRO OF HOLSTEIN AND PUT IT UNDER AUSTRIAN AD TRATION AND THE PROVINCE OF SCHLESWIG WAS PUT UNDER PRUSSIAN ADMINISTRATION

In 1895, the year in which the Kiel Canal was opened, Germany joined France and Russia in a demand upon Japan that it give up Port Arthur, which it had just taken from the Chinese. The interest of Russia and therefore of its ally, France, was plain enough. Russia wanted the port itself. Germany's interference seemed entirely uncalled for and provoked much resentment in Japan. This combination against Japan threw that country upon England and resulted in the Anglo-Japanese alliance which now gives the Japanese fleet an excuse to attack the German port of Kiao-chau.

In 1896, the day after the Jameson raiders were captured by the Boers, Emperor William congratulated President Kruger that it had been done "without appealing to the help of the friendly powers." This direct slap at England was met by the formation of a flying squadron and by calling attention to the London Convention reserving supervision of the foreign relations of the Transvaal to England. Later the Emperor snubbed Kruger and was very friendly to England, but the incident served to set English public opinion against the Kaiser almost until the rise of the German Navy gave England a renewed feeling of coolness.

In 1898, after Admiral Dewey had defeated the Spanish Fleet in Manila, Admiral Diederich with a German fleet entered the harbor and wounded the English Admiral, who arrived about the same time, as to what his attitude would be were Germany to try to force the American fleet to give up Manila. The answer was sufficient to prevent any move on the part of the German admiral but not to prevent a feeling against [illegible] an Government.

In 1905, the Emperor in person land Morocco, where France felt it had part claims. As a result of this visit the S refused to accept the French programm asked for a conference with representati the leading powers to advise him. M. Del the French Minister of Foreign Affairs, tested that France would attend to the n alone. The German Chancellor, Von B used threatening language. France gav M. Delcassé resigned. The "mailed fist" been successful and another country was voked against Germany.

In 1908 Austria took over Bosnia and H govina. England and Russia protested tha was against the stipulations of the trea Berlin. Russia intimated that the annex of Slav provinces might lead to its interfe The German Emperor responded with a t of instant mobilization. Russia had recovered from its Manchurian campaigns the Czar had to back down. Again the "m fist" was successful and another nation given a grievance against Germany.

In 1909 an agreement was made with F concerning Morocco. All was seemingly factory when on the first of July, 1911 First Secretary of the German Embassy upon the French Foreign Minister to i him of Germany's decision to send a wa to Agadir. The cruiser *Panther* served a "mailed fist" this time. She failed o mission. France was not intimidated as b but the incident was fresh fuel to the F feeling against Germany.

In July, 1910, at the launching of the *W ha h*, William II declared that the "ocean indispensable to German greatness":

AFTER THE PRUSSIAN-AUSTRIAN WAR

BISMARCK'S SECOND "BLOOD AND IRON" VENTURE WAS TO PROVOKE A WAR WITH AUSTRIA, DEFEAT THAT COUNTRY AT SADOWA IN 1866, JOIN THE TWO PARTS OF THE PRUSSIAN KINGDOM, AND ENLARGE IT BY TERRITORIAL CONQUESTS

AFTER THE FRANCO-PRUSSIAN WAR

BISMARCK'S THIRD EXPERIMENT IN "BLOOD AND IRON" WAS TO ENGINEER A WAR WITH FRANCE, DEFEAT ITS ARMIES, TAKE ALSACE AND LORRAINE AND CREATE A NEW GERMAN EMPIRE WITH PRUSSIA AT ITS HEAD

"The ocean teaches us that on its waves and on its most distant shores no great decision can any longer be taken without Germany and *without the German Emperor.* I do not think that it was in order to allow themselves to be excluded from big foreign affairs that thirty years ago our people, *led by their princes,* conquered and shed their blood. Were the German people to let themselves be treated thus, it would be, and forever, the end of their world-power; and I do not mean that that shall ever cease. To employ, in order to prevent it, the suitable means, if need be."

The Emperor has carried out his policies. Germany has not been excluded from big foreign affairs. No great decision has been taken without Germany and the German Emperor. But the net result of the activity has been to leave Germany nearly isolated when the great war came — in the very predicament in which Bismarck used to manœuvre the enemies of Germany before provoking war. Moreover, he has forgotten Bismarck's maxim that "success essentially depends upon the impression which the origination of the war makes upon us and others; it is important that we should be the party attacked."

Whatever the provocation in this war, Germany actually declared war first on Russia, France, and England.

There is another policy or rather belief which Emperor William inherits. It is exemplified in the speech he made as late as 1910, in which he said:

"Considering myself as the instrument of the Lord, without heeding the views and opinions of the day, I go my way."

Against the spread of democratic principles the Kaiser stands as the first defence. Behind him are the Emperor of Austria and the Czar. But the German Emperor, the champion of Teutonism against the Slav, is the defender of autocracy of which the Czar is the best exponent. The German Emperor's insistence of his divine right has lost Germany the sympathy of the democratic countries of the world.

At the Oxford Commencement this year the German Ambassador to England was given an honorary degree, and in giving it the college authorities dwelt upon the fact that the strained situation between England and Germany that was acute in 1911 had been entirely relieved. A few days later six English battleships were in the friendly harbor of Kiel during the great Kiel Week. Officers of both nations danced gaily on the decks of the British dreadnaught *Ajax.*

Five weeks later the *Ajax* with a great fleet was in the North Sea "to capture or destroy" their hosts of but a short time before.

The German Emperor cut short his yearly visit to Norway. President Poincaré hurried back from Russia to France, Earl Kitchener was stopped at Calais on his way to Egypt and brought back to organize England for war. Germany's threat prevented Russia from disturbing Austria's Balkan policies once before. The "mailed fist" had worked against almost every country in Europe and yet no war had occurred. Then suddenly it fails, Germany's threat of mobilization is met by mobilization elsewhere, and the Emperor finds himself isolated, fighting half the world and with little sympathy from the other half. With him is only Austria, which precipitated the struggle and to whose assistance he went.

MEN WHO CONTROL THE DESTINY OF EUROPE

SIR EDWARD GREY

SIR EDWARD GREY has been at the head of the British foreign office for nine years. He has been in the British public service 30 years, in Parliament, as under Secretary of State under Gladstone, and in his present position. The striking fact about him that which Englishmen of both parties place in his hands the fate of the nation with implicit confidence is the honesty and frankness of his every public action.

He is not a diplomat in the old sense of the word. He has no tricks or wiles. He is entirely straightforward. With all the cards on the table, he conducts the foreign affairs of the British Empire in much the same way as other business is conducted.

He has had the least possible hand in the intrigues, compacts, plots, plans, and stratagems of the European diplomatic arena. As far as her situation would permit he endeavored to realize for England the venerable American policy of a friendship for all, entangling alliances with none! The other day in the House of Commons he made it clear that England was under no agreement or contract to fight for France or Russia.

His natural disposition to avoid the complications of the continental game of empire, may be clearly seen in a speech he made in January, 1912.

"Let me put you on your guard against people who, as I think, are very bad advisers with regard to foreign policy. There is a certain section, I have no doubt, in the Liberal Party, which think we do not interfere nearly enough, especially in certain parts of the world, in Asia. Mongolia, I think, was the last selected as a part in which we should take an active interest. Believe me if you are going to pursue a foreign policy of that kind, and this country is going to interfere actively in Central Asian questions far beyond our own Indian frontier, you are going to incur, not only the very heavy naval expenditure which we have already, but a vastly increased military expenditure as well; and the people who press upon me a different foreign policy to that which is now being pursued are, it seems to me, people who are really advocating as a foreign policy the maximum of interference in the affairs of the world at large and the minimum of friendship; because the policy, if it were carried out, would soon leave us without a friend in Europe."

The policy of not meddling with other nations and provoking their hostility seems well repaid when in a crisis like this the long expected German-English war comes and finds England with many allies and Germany almost isolated.

COUNT BERCHTOLD

COUNT LEOPOLD BERCHTOLD, whose aggressive policy toward Servia precipitated the war of the world, is the second Austrian statesman with a foreign policy more active than playing "a brilliant second" to Germany. In 1908 Count d'Aehrenthal, who, as Ambassador to Russia, had feared the revolutionists, risked starting a European war by annexing Bosnia and Herzegovina to Austria. Berchtold took the same risk this year in undertaking to discipline Servia. But this time Russia had recovered from the Japanese War!

Count Berchtold is an intellectual and courteous diplomat, of unmilitary training.

He succeeded d'Aehrenthal not only at the Foreign Office in Vienna but previously at the Austro-Hungarian Embassy at St. Petersburg. He was know as a protégé and to some extent a disciple of d'Aehrenthal. He was a young Ambassador in St. Petersburg when he was sent there in 1907 by d'Aehrenthal — apparently under forty — of a tall and exceptionally graceful figure, long limbed but not athletic. A healthy pallor lent distinction to regular features, and scant, soft, brown hair of an indefinite tone added to the height of a broad brow and gave an intellectual cast of countenance. An aristocrat to the finger tips, at home, like his predecessor, rather in the drawing room and the cabinet than in the field. Berchtold has shown the same calculating daring — intellectual rather than physical.

It is not to be supposed that Austria's ultimatum to Servia on July 26, 1914, was made with any less knowledge of consequences by Berchtold than the annexation of Bosnia-Herzegovina by d'Aehrenthal in 1908. If any foreign diplomat to-day knows the aims of Russian diplomacy, it is Berchtold. When, in February, 1913, Prince Gottfried Hohenlohe reached Petersburg, the bearer of a letter from Francis Joseph to the Czar, with powers to negotiate if necessary the menacing situation in the Balkans, Berchtold showed an appreciation of the possibilities of friendly diplomacy, for Hohenlohe is not only intimate with the most powerful of the Grand Dukes but is also in favor with the Emperor. The upshot of Hohenlohe's mission must ultimately have been ineffective: but Austria's aims at the Sanjak

:ar and an outlet on the Ægean are as well known. Her foreign policy the consistent development of the turn given to it by d'Aehrenthal. lirected by a man of supple and in-orce rather than physical vigor and lane of an aristocrat who still regards 'velopment as a thing entirely dynas-'istocratic. The preservation and he Austrian Empire is the goal, and e time the stake.

e of success cannot be too high.

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N BETHMANN-HOLLWEG

.OSOPHER and academician, Theo- l Von Bethmann-Hollweg, by a len upheaval of destiny, inherits of l and iron" tradition of Bismarck ıtbreak of world-wide war. He is aunt; a quiet, yet compelling pres-hen he speaks it is straightfor-nply. His sincerity is rather more ıan, his thoroughness entirely Ger-vity is the essence of him. But, com-nd persuading as is his physical pre-many has not hitherto found him a ; figure.

:hmann-Hollweg comes from an old erchant family ennobled in 1840. He s old and has been Imperial Chan-e 1909. He and the Kaiser were ogether at the University of Bonn, aiser's confidence in him and friend-him date back to those early 'vertheless he has risen to the ›pointive office in the Empire, not ism, but through the stereotyped German officialdom, each step in patiently gained and creditably ted.

ın-Hollweg studied law at Göttingen, and Berlin, from 1875 to 1879, and ving the legal profession for the next he was appointed judge at Potsdam. n, he enjoyed the intimacy of the

›intment to the chancellorship in 1908 'n the Empire was thought to be isis. Certain elements in the Reich-trying to make the chancellor a res-fficer; a financial bill, which com-e Empire to the expenditure of ›o, stood in danger of being de-on Bülow had lost the confidence 'ichstag through his cynicism, and he Kaiser through hinting to the ›e more careful about public utter-veryone wondered who the "next ld be.

ointment of Bethmann-Hollweg came surprise. Yet it has been fairly jus-ılthough the Chancellor is a "Kaiser-sinks his personality into the shadow ›eror, he has conducted his office with

HERBERT HENRY ASQUITH

THE foremost diplomatic figure in the great European War, from the English speaking viewpoint, is the Right Honorable Herbert Henry Asquith, Prime Minister of England, and First Lord of the Treasury — a Yorkshireman of Puritan stock, who, without family, influences, or fortune, has worked his way up from the bottom until he stands to-day in the powerful position held by Gladstone — a position which is one of the directing forces behind modern civilization.

Born at Moreley, Yorkshire, on September 12, 1852, he was educated at the City of London School, and at Balliol College, Oxford. He became barrister at 24 years of age at Lincoln's Inn, and as early as 1890 became a Queen's Counsellor. His ambition, however, lay rather in the direction of the House of Commons. He was elected member of Parliament for East Fife in 1886. It was four years later that he moved the vote of want of confidence which overthrew Lord Salisbury's government, and was made Home Secretary in the new Liberal Ministry.

It was Asquith who coined the phrase as to the Government's "plowing the sand" in their endeavor to pass Liberal legislation with a hostile House of Lords. During his three years of office he confirmed the high opinion formed of his ability. The Liberal defeat of 1895 left him out of office for eleven years.

During the years of Unionist ascendancy, Mr. Asquith divided his energies between his legal work and politics, and became identified with Lord Rosebery's attitude toward Irish Home Rule. When Mr. Balfour resigned in 1905, and Sir Henry Campbell Bannerman became Prime Minister, Mr. Asquith was appointed Chancellor of the Exchequer. He pledged himself to inaugurate a system of old-age pensions, and his advocacy of other social reforms greatly increased his popularity. On the resignation of Sir Henry Campbell Bannerman in 1908 the King appointed him Prime Minister.

PRESIDENT POINCARÉ OF FRANCE

PRESIDENT POINCARÉ, of France, is the great champion of electoral reform at home, and of the Triple Entente abroad, His first executive act as President of the Republic was to appoint as ambassador to Russia Mr. Delcassé, father of the Triple Entente.

France is now enjoying the rewards of one of these policies of Delcassé and Poincaré. She has Russia and England as allies in the long-expected conflict with Germany.

The President of France is a bearded pale-faced, rather short and stout man who impresses friend and foe alike with his mental ability. He has the versatility of his race. According to the painter, Degas, he "is the only politician who knows anything about art."

He is a patron of the turf, an author of widely read books which won him a place in the French Academy beside his famed artist cousin, Henri. As a lawyer he stood first at the Bar, and as an educator he has been Minister of Public Instruction. While Minister of Finance, he put on the statutes laws regulating and equalizing the taxation of millions. He has been counsel of the Beaux Arts, counsel of the National Museum, president of the Philotechnique Française, and president of the Society of Friends of the University of Paris.

He is still in the prime of life and undiminished vigor, for he is only 54 years old. In this crisis it is fortunate for France that she has in the Presidency one of the few strong characters who have held that office since the last war with Germany brought about the Third Republic.

BARON CONRAD VON HÖTZENDORF

THE direction of the armies of Austria-Hungary lies in the hands of Baron Conrad Von Hötzendorf. He has the confidence of the aged Emperor, and rank and file of the army, and is, besides possessing unique qualifications and capacity for army organization, the Kitchener of Austria-Hungary.

Political affairs in Austria brought him to the front in 1906, when he was made chief of the general staff, receiving the rank of general in 1908. Three years later he was relieved from this position to become army inspector in 1911. But in 1912 he was recalled to the post of chief of staff.

GRAND ADMIRAL VÖN TIRPITZ

ADMIRAL VON TIRPITZ made the German Navy. Only war will tell whether he has made it as effective as several generations of Englishmen have made the British Navy, but there is a great deal of sound opinion to the effect that Von Tirpitz's work is the equal of any Navy in the world.

His activities during the fall manœuvres of 1894 won for him the recognition of the Kaiser, who mentioned that fact in the royal message sent to the commander, Freiherr von der Goltz. Von Tirpitz's reward was promotion. He was made Chief of Staff and was given charge at Kiel. The plans for the manœuvres of the next year were drawn up by him and the Kaiser did not miss an opportunity after that to show his appreciation.

After he had become Secretary of State in 1898, von Tirpitz began a campaign the like of which Germany had never before known. His intention was to make the naval service as strong as the military arm. A naval base was established at Kiel, the methods of the Engineering Corps were modernized, and a new set of regulations was arranged for the education of the new generation of officers. Supplementary bills were passed, through his efforts, in 1900 and 1906. He was then made a noble with a hereditary title.

This old gray German admiral joined ernment's service as a naval cadet fo ago. German sea power consisted lection of obsolete frigates, euphe called the Prussian Navy. He now d second largest navy in the world. O think that, having devoted his life to contest in naval construction with G tain, he would be a strong Anglophobe the reverse is the case. All his chil been educated in England, and he is admirer of the best things in British and achievement. Perhaps more than one man he is responsible for the almo competitive building programme of navies during the last generation, cling iously to his "two to three" German against Great Britain's insistent "tw

KING ALBERT OF BELGI

THE figure of the young King o — a man 39 years of ag against a picturesque backgro European conflict. His voice was by the world-at-large when, in defence of his little kingdom, he calle soldiers in a spirited proclamation their country to the last drop of bl stand shoulder to shoulder against a co

The full name of the Belgian King Leopold-Clement-Marie-Menard. H in Brunswick on April 8, 1875, and surviving son of the Count of Flander in 1905. He is of a studious dispo bears a striking resemblance, to his u Leopold II. He was married in 190 beth, Duchess of Bavaria, third d Duke Charles of Bavaria, and wa King of Belgium in 1909.

He knows America well, having sp an entire year in 1898 in this country heir-presumptive. In 1910 he disp Washington Baron de Beaulieu, one tinguished members of the Belgian service, for the purpose of officially the President of his accession to t being the first European sovereign special ambassador to the United formally announce his accession.

He resembles his late uncle in the ness with which he reads the leading n of Europe. Every morning the Lond the Paris *Temps*, the Berlin *Kreuz Z* the Vienna *Neue Freie Presse* are pl his study table. He likewise reads th press, particularly those papers w attention to electrical subjects. His engineering. Some months before he the throne he ran a locomotive from t Capital to the Frontier. He is now s make himself an authority on wireless te and has had a complete radio-telegr tem fitted up at his palace at Laeken f ments. He is a hard working, mo stitutional monarch.

ıDUKE FRANCIS-FERDINAND

E whole world was startled when ıe news was spread broadcast that ıe heir to the Hapsburg's imperial together with his morganatic wife, chess of Hohenberg, had been assas- at Sarajevo. When the news of the ation of the Archduke and the Duchess oken to the aged Emperor, Francis he cried: "Horrible, horrible! No s spared me."

ıe last twenty years Francis Ferdinand n the dark horse of Europe. Perhaps rgence in many ways from popular ideas an Emperor ought to be may be ac- for by the fact that up to the time he ɜnty-six years old he never expected ithin reach of the crown, as he was not :he line of succession.

as born in 1863. His mother, Maria iata, was a daughter of Ferdinand II ɜs. Through the tragic death of Crown Rudolph in 1889, Archduke Charles (the Emperor's brother and Francis nd's father), was made heir to the Charles Ludwig, however, on account ısked to be excused from the succession, ıving the way to the throne clear to

Ferdinand calmly announced in 1893 was not in love with any of the Arch- ɜs at the Imperial Court but with one · companions, an obscure Bohemian ;, the Emperor was dumfounded, and ıntess was promptly discharged, and ıduke set out on a trip around the world. ɜmpted to return through the United vithout disclosing his identity, but was :ed at Chicago and New York, where he l much attention. Eventually the Em- .ve his consent to a morganatic marriage e Countess (Sophie Chotek) but the ke was compelled to take a solemn oath never would attempt to place his wife :hildren on the throne. The Countess, marriage, took rank, as Fuerstin of erg, and in 1905 was given the rank of ;.

:is Ferdinand had been brought up in ıy and had no particular training for ft, but at the time of his death he a great influence in the affairs of State. risis attending the annexation of Bosnia :rzegovina in 1908, and in the Balkan 1912–1913, he was one of the leaders in ıp of men who pulled the dual monarchy the fire in one of the most remarkable ıs of modern diplomacy.

nand was made a general and re- ɜd the Austrian general staff with uccess in 1891. He took up locomo- ;ineering as a hobby, and was recog- s one of the best shots in the country. ılls of his castle at Konopischt were vith the antlers of 2,000 stags and chamois, as well as with the heads of tigers killed in India, the tusks of elephants slain in Ceylon, and the pelts of bears shot in the Rocky Mountains.

HORATIO HERBERT KITCHENER

THE eyes of all England are focused at present on Earl Kitchener, the "organizer of victory" who stands to-day in supreme command of the destinies of the British land forces, both as Secretary of War and as commander-in-chief of the Army.

Earl Kitchener is a tall man, 64 years old, with heavy gray moustache and wavy gray hair, which he wears parted in the middle. He has a sunburnt, determined-looking face, large steel-blue eyes, and square jaws.

Until the events of the moment, Kitchener has never commanded against the organized army of any Power of the first rank, but he is probably the best known military leader in Europe. He was born in County Kerry, in 1850, of English parentage. He was educated at the Royal Military Academy at Woolwich and entered the British army when twenty-one years of age, receiving a commission in the Royal Engineers. Offered a post under the Palestine Exploration Fund, he spent some years in Palestine, and was employed to make a survey of the Island of Cyprus.

When Lord Wolseley waged the campaign of Tel-el-Kebir in 1882, Kitchener was given command of the Egyptian cavalry. Then, from 1884 to 1885, he was with the Nile Expedition. He commanded at Suakim in 1887 and he succeeded Sir Francis Grenfell as Sirdar in 1890.

Kitchener stepped into world fame and into the heart of every Englishman in 1896. It was then that he began the reconquest of the Soudan, and two years later the Soudan was conquered. Thereupon, he was promoted to the rank of major-general, received a grant of $150,000 with the thanks of Parliament, and was raised to the peerage. Thereafter he was popularly referred to as Kitchener of Khartoum.

The days of glory for Kitchener came again in 1899, when he was sent to South Africa as chief of staff with Lord Roberts. How he finished the Boer War, how he arranged the Peace of Vereeniging, and how he came home to be made a Viscount, with the thanks of Parliament and a grant of $250,000, are all matters of recent history. From 1902 to 1909 he was commander-in-chief in India, and after that returned to Egypt in the capacity of British agent and consul-general at Cairo, thus returning to the scene of his first triumphs.

Kitchener of Khartoum has proved his mettle in many and varied capacities. He is one of those remarkable Englishmen whose mission it is to rule countries which have come under British dominion during the extension of world-wide empire. He was recently created an earl

by King George and has received many distinguishing honors.

Many stories are told of him, a characteristic one being his reply to the War Office, which sent him obsolete guns when he asked for the newest. He is reported to have sent the sarcastic reply, "I can throw stones at the enemy myself."

SIR JOHN RUSHWORTH JELLICOE

SIR JOHN RUSHWORTH JELLICOE, has recently been made Vice-Admiral Commander-in-Chief of the British Home Fleet. He is fifty-five years old and has spent forty-two years in the Navy. As a lieutenant he was present at the bombardment of Alexandria and afterward took part in the battle of Tel-el-Kebir as a member of the Naval Brigade. At the end of this war he was presented with the Khedive's Bronze Star for his gallant service.

When the ill-fated *Victoria* was rammed by the *Camperdown* and sent to the bottom of the Mediterranean Sea, Jellicoe was seriously ill with the Malta fever and confined in the hospital quarters of the ship. Sir John Tryon and more than six hundred officers and men lost their lives, but "Jack" Jellicoe escaped.

"How?" he exclaimed recently, in speaking of the incident. "I do not quite know myself."

Suffice it to state that his temperature registered at 103 shortly before the collision, and when he was fished out and landed aboard the rescuing ship it was normal, and normal it remained.

Admiral Jellicoe was sent to China in command of a naval brigade in 1898 to help subdue the Boxer Rebellion, and later he acted as Chief of Staff to Admiral Edward Seymour during the attempted relief of the Peking Legations in 1900.

Severely wounded by a bullet through his lungs at Teitsang, when he recovered the German Emperor conferred upon him the Order of the Red Eagle and presented him with swords for his great service to the world in general and the Germans in particular who were involved in the Chinese Rebellion.

Returning from China an invalid, he married Florence Gwendoline Cayzer, in 1902.

This picturesque sea-fighter served as rear-admiral in the Atlantic Fleet in 1907–8 and became Lord Commissioner of the Admiralty and Controller of the Navy in 1908–10. He became commander of the Second Squadron of the Home Fleet in 1911–12. On July 23d last, he was appointed Vice-Admiral and Commander-in-Chief of the British Home Fleet, and to him was sent that momentous cablegram when England issued her declaration of war — "Capture the enemy or destroy them."

Admiral Jellicoe is regarded by the English as responsible more than any other officer for the marvelous progress in the naval gunnery in the English fleet. The destinies of the British Navy are now in his hands.

MARQUIS ANTONIO DI SAN GI

THE Marquis di San Giuliano co foreign destinies of Italy. H dited with plunging Italy into and keeping her aloof from another. H about the war with Turkey, but is op helping Germany and Austria.

The Italian Minister of Foreign Affair to an ancient Sicilian family of man and was born in 1853. He is ... aris the core. Devoting himself to natic blems, and being well informed, he public life as a senator. At first, on a his great fluency, he was regarded as after place and power. His first o pointment was to an inferior position Secretary in the Department of Ag Upon his own urgent appeal he was t to the foreign department — a really ous event, as it proved for Italy. such an impression that when th Cabinet came into power, in 1899, he Postmaster-General, a post that wa uncongenial to him.

But upon the Cabinet's reconstr attained his goal, becoming head of t office. Here he came in direct contac King, who for long was unable to u the extraordinary secretiveness of his But the King's confidence was at la by their mutual interest in old coi ancient monuments, etc.

San Giuliano has been an extensiv in Soudan and Abyssinia, in Asia, and in the Balkan States. Through t Alliance, he became the repository of t of the Austrian and German Allian intrigues between Russians and the T the spy system of Austria, all which to himself, made him the mystery in Europe. Pressed to tell what he always replied: "I'll tell everything time comes."

As a former Ambassador to Brita peared everything that an Italian s polished and suave, unpeccable in tast and brilliant — indeed, Machiavill home he exhibited many talents, lit artistic, which he attributed largel influence of his mother, a daughter of t of Cassaro, a great social leader. At he owned the leading journal in Ital that and other periodicals he co largely. Upon the drama of the da recognized authority, as well as on is a student and a lecturer. The disti Italian is well remembered in Americ spent a considerable time in the Unit during the Interparliamentary Unio Louis in 1904, as the president of th Delegation. As a result of the Italian War, the King created him a Knigh Order of the Annunciation, which inve with the titular designation of cous King and almost royal prerogatives.

MINISTER NIKOLA PASHITCH

)LA PASHITCH, the Prime Min-
:r of Servia, the little kingdom around
ich rages the European War, is a
'-eyed man, 68 years of age, of medium
igh forehead, and long bearded face
/s virility and intellect. He was born
char, Servia, in 1846. Son of a very
iily who gave him a good education,
on was sent to the Technical Institute
de, where he remained for four years,
3 to 1872.
rty years of age, Pashitch became a
engineer in the Servian-Turkish War
He remained there two years. After
ie appeared as a very active member of
ional Deputies in the old Radical
During the struggle of the Serbs he
s way to the official leadership of the
Party which is now in power in Servia
ipened in the year of 1881.
ing that his people were not making
his spirit revolted, and, in 1883, he
ie Zayenchar Mutiny, but escaped to
vhile twenty-one of his confederates
tenced, executed, and shot. It hap-
iat at this time Pashitch was near the
f Bulgaria, and therefore he was able
e, only to return later and pick up
ggle where he had been forced to stop.
g the amnesty of 1889 he was made the
f Belgrade, and it was now that the
were able to see this man play an
it part in the aid of his countrymen.
me Prime Minister of Servia.
is sent to St. Petersburg as ambassador
a in 1893, where he won the great
on of noted diplomats in that capital.
t this time that he cemented the friend-
Russia and Servia which exists so
to-day.
:ch was accused in 1899 of stirring a
He was tried and sentenced, but
mprisonment. The charge was finally
ed at the intervention of Russia, where
already gained impressive respect.
people believed in his great personality
racter, and he was made Minister of
Affairs after the assassination of Alex-
King of Servia. When Peter became
Servia he was made Prime Minister.
rmany, Pashitch is looked upon as the
of the Balkan Alliance.

ADMIRAL HUGO VON POHL

E chief of the admiralty staff in Ger-
iany is a mild gentleman 59 years of
ge. Admiral Hugo Pohl was born in
on the 25th of August, 1855. When
only twenty-one years of age, in 1876,
me lieutenant in the Imperial German
nd three years later was made a first
nt. He became lieutenant-captain on
iting cruiser *Carola* in 1887. His next
commission was with the military department of the Imperial naval office, and later he became officer on the ironclad *Wurttemberg*.

His ability gained his steady promotion and he was made korvette-captain and leader of the central office of the Imperial naval board in 1894. Four years afterward he became frigate-captain and commander of the ironclad *Ægir*. His next ship was the cruiser *Hansa*. He became captain at sea in 1900. Within five years he was a commodore in charge of the scouting ships, with the duties of second admiral of the first squadron. It befell him to take charge of the work of setting up the new naval stations from Kiel to Sonderberg in Schleswig in 1908. He was awarded for his work in connection with that undertaking by being promoted to vice-admiral in 1909.

Admiral Pohl (up to the outbreak of the present European difficulties) is one of the few commanding German naval authorities who have been on a German ship when it exchanged the actual shots of war The only opportunity Germany has had to try out the navy, since Admiral von Tirpitz renovated it, was at the forts at Taku, China, in 1900, while the Boxers were active.

Admiral Pohl, like his superior, Admiral von Tirpitz, is an exponent of a large navy for Germany. He would divide the fleet into two squadrons, one to be kept in the North Sea in order to protect the German coast, and the other squadron to roam the world's waters seeking prizes and doing what it can to destroy property of the enemy.

With the Kaiser he is extremely popular and wears, as a gift from his sovereign, the medal of the second class (with black) Order of the Crown. The Czar, whose ships Von Pohl must try to destroy, has bestowed on him the St. Stanislaus Order.

COUNT HELMUTH VON MOLTKE

GENERAL MOLTKE, who, as chief of staff, is credited with the disposition and direction of the German forces at the outbreak of this war, is four years older than his French antagonist, General Joffré. General von Moltke looks what he is, a typical product of German militarism, face like a mask, rigid, formal, official.

Like Admiral von Tirpitz, Chancellor Bethmann-Hollweg, Furstenberg, and Von der Goltz, he is a "Kaiserman"; that is to say, he is now, and has for many years been, a favorite of the Kaiser, holding his position by a combination of favor and ability — though rumor has several times declared that his star at court had grown dim and that only the Kaiser's inability to find a suitable successor had kept him where he was. When his uncle, the famous field marshal Von Moltke, died in 1891, the present General became aide-de-camp to the Kaiser and has been chief of the general staff of the army since February, 1904.

General von Moltke has not shown himself to be a great military genius. Many believe him a less able strategist than General von der Goltz. His promotion to chief of staff caused a good deal of unfavorable comment which has however disappeared with time and the evidence that Von Moltke is able to handle an extraordinary amount of work.

EMPEROR FRANCIS JOSEPH

A BROKEN down old man, eighty-four years of age, who holds down the destinies of Austria, precipitated the present war in Europe. His tragic career began sixty-six years ago, when, on December 2, 1848, as a slim, pale, delicate youth of eighteen, he found himself suddenly confronted by a throne. Two weak-willed gentlemen, in turn, somewhat frightened at the responsibility of warring states within their Empire, successively laid down its crown with immense relief, and left the beardless student, only recently out of the famous Theresianum College, to assume its burden.

As to whether he, too, at that age, might have exhibited some of the wavering spirit of his father, Archduke Francis Charles, and his uncle, the Emperor Ferdinand of Austria, had it not been for his mercilessly ambitious mother, the Princess Sophia, only the words in which he greeted his new honor can give us any clue: "Oh, my youth! Thou art forever gone from me!"

Yet with those words on his lips he put that youth behind him, mounted the throne, and became Emperor of Austria, destined to go down in history as one of the commanding figures of his age.

He found his empire composed of seventeen warring kingdoms, chief of which was Hungary. For nineteen years, internal dissensions and external aggressions engaged his attention, yet in all this time only two little principalities slipped from his grasp.

Recognizing in Hungary, however, a spirit of independence that could not be quenched, he granted in, 1867, the organization of the dual monarchy of Austria-Hungary, each country retaining control of its internal affairs, but uniting in the selection of ministers of finance, war and foreign affairs, to act for both countries under one Emperor.

With inimitable diplomacy, Francis Joseph, "the Reform Emperor," as he came to be known at the time of the establishment of the dual monarchy, while thus granting constitutional government to his people, has managed, because of the warring elements which make up his two Parliaments, to retain the real reins of government in his own hands.

His people have sorrowed with him in the succession of tragedies which he has suffered: first, the execution of his brother, the Emperor Maximilian, in Mexico; then the tragic death of his son, the Crown Prince Rudolph, found slain in his hunting lodge with the Maria Vetsera; to be followed in the golden jubilee by the assassination of the Empress Elizabeth; and, finally event which has plunged all Europe the assassination of the heir-app Archduke Ferdinand and his morg the Countess Sophie Chotek, while the Servian capital.

For years the press and public awaiting the death of this wonderf Emperor, and the loosing of the bo have held his varying peoples toget signal for a general Continental w seems that not even to Death is he delegate his kingly prerogative. the old German Emperor said of him: Joseph has three ministers of the w archy, eight of Austria, ten of Hun three of Croatia — in all, twenty- when anything is to be done, he h himself."

SIR JOHN DENTON PINKST FRENCH

SIR JOHN FRENCH, sixty-tw age, is one of the two foremost erals of the British Army. with the one exception of Secreta Earl Kitchener, as probably the mo military figure in England.

His eventful career has led him Africa, and Canada, and always wi results. In the Boer War he wa English general who was uniformly His soldiers were popularly suppos had no sleep. At the time of th Kimberley, he was shut up in Lady the Boer lines ever circling closer an possible for the English troops even wanted it. But if Kimberley, wit treasure of diamonds, was to be sav Boers, the beleaguered troops had to and Sir John was apparently the onl could accomplish it. The Boers we trains to run out of Ladysmith c women and children to safety, and these — by squeezing under the second-class carriage — French m escape. Once outside the Boer line his way to the Cape, where he charge of about eight thousand c With horses dropping every mile, st long enough to annihilate every Boe to impede his progress, he swept t Free State, riding both day and he reached Kimberley. He was ju Two days more would have seen i surrender.

His family intended Sir John for t but when he was fourteen he chos instead and joined the *Britannia*. he left the navy for the army in 187 long series of battles he soon proved h skill. He commanded the 19th Hu

1893, rising steadily in rank after that 1907, he was made Inspector General orces, and in 1913 Field Marshal.

nce fair hair is gray now, but his Irish es have not lost their sparkle, and his s for long tramps has kept down the unds which his short, stocky figure has tendency to put on.

NSTON SPENCER CHURCHILL

E commanding personality in the Admiralty Office in London during the present risis is a tall, slender, clean-shaven, an of scholarly bearing, a journalist ier, forty years of age, who came to the the South African war.

on Churchill, the First Lord of the ty since 1911, is half American in his ge. His mother was Jennie Jerome, of ork, before her marriage to the late andolph Churchill. The young states- s born November 30th, 1874, and sent ow when 14 years old.

ilitary training began at nineteen years when he entered Sandhurst in 1893, ame lieutenant in the Fourth Hussars rs later, when he entered the army. ed with the Spanish forces in Cuba, e won his first order, "Military Merit of Class," and incidentally acted as spe- espondent of the *Daily Graphic*.

hill's first experience in actual warfare n the Fourth Hussars were ordered to Here he fought on the Malakand Front- 1898 he was attached as orderly to the edition, joining the Twenty-first Lan- accompany Lord Kitchener up the Nile re-conquest of Khartoum. His inter- nd outspoken correspondence for the *Post* attracted wide attention.

uing as war correspondent, he rushed uth Africa, where he was captured by the d made his adventurous escape from prison. It was at this time that the vith what Mark Twain designated as cious humor," posted the following on of him: "Englishman, 25 years old, ve feet eight inches high, indifferent alks a little with a bend forward, pale ice, red brownish hair, small mustache, erceptible, talks through his nose, can- nounce the letter "S" properly and know any Dutch."

American people first made their ac- ice with their brilliant young English when he visited the United States in lecture on the Boer War. Churchill ted member of Parliament for Oldham, iservative. He soon went over to the and returned to the House as Under y for the Colonies (1906–1908).

the reconstruction of the Government Ir. Asquith in 1908, Churchill became t of the Board of Trade (1908–1910). advanced to the post of Home Secretary in 1910 and he became head of the navy, as First Lord of the Admiralty, in 1911. He announced that he purposed to make British naval supremacy endure at any cost, a policy that has given the British Navy a 60 per cent. advantage in dreadnaughts over Germany in the present conflict.

GENERAL PAU

GENERAL PAU is the French Commander next in rank to General Joffré. It is proof of his popularity and efficiency that, having been retired for age at sixty-seven, he had resumed active service before the outbreak of the present war as a result of a popular campaign to reinstate him. Short, thick-set, thoroughly French in manner, he is even a more complete contrast than is General Joffré to the rigid type of German commander.

CROWN PRINCE FREDERICK WILLIAM VICTOR

THE most extraordinary figure in Europe to-day is the young Crown Prince of Germany, thirty-two years of age. Riding at the head of his troops, the most significant of his characteristics is a profound admiration for Napoleon. He believes in rule by divine right, and is said to be impatient to have this divine right go into effect. Several years ago his appearance at the Reichstag, to dissent from the Chancellor's proposed peaceful arrangement with France about Morocco, made him the leader of the war-seeking element in Germany, and incidentally led to considerable friction with his imperial father.

The Crown Prince, is tall, slim, and impulsive. His full name is Frederick-William-Victor-August-Ernst. The late Queen Victoria, his great grandmother, was his godmother. After completing a course at the military cadet institution at Ploen, like the Kaiser, and his grandfather, Emperor Frederick, he attended Bonn University. On the completion of his university course in the spring of 1903 he set out on his travels.

To train him for his future responsibilities he was first sent to the offices of the Potsdam provincial government for study of local administration. Then he was turned over to the Prussian Ministry of the Interior to acquaint himself with the intricate routine through which two thirds of the German people are governed. Since then the Crown Prince has studied naval administration at the Admiralty, besides acquiring some knowledge of the workings of Bismarckian diplomacy at the Foreign Office.

He married the Duchess Cecilia of Mecklenburg-Schwerin, in 1905. The Kaiser has remarked of his hotheaded son: "Well, William is no diplomat. I will admit it, but I believe the fellow has got marrow in his bones. He will turn out to be our Moltke yet."

RÉNÉ VIVIANI

RÉNÉ VIVIANI, the present Prime Minister in France, was born in Algeria. His success in French politics has been due to his interest in labor. When the office of Minister of Labor was created by the Clemenceau Government in 1906, he was the first man to fill it. Although the next Government was of an opposing faction, M. Viviani still was kept at his post. In accordance with his labor sympathies, he worked consistently against the law providing for a compulsory three-year period of service in the army, in favor of which the country recently voted.

M. Viviani is an able man, but his strong points are not particularly war and diplomacy.

BARON VON DER GOLTZ

WHEN the Bulgars and the Servians drove the Turks out of Thrace and Macedonia two years ago, the rest of Europe took the rout as a German defeat. Superficially, they were right. The organization and mobilization of the Turkish army were entirely German in plan and the beaten Turks fought in German uniform with German artillery and rifles. The correspondents who so glibly drew these conclusions very rarely modified them by additional information as to how plans and organizations, excellent in themselves, had been disregarded or inefficiently carried out. One can no more blame a German rifle for missing fire with French ammunition than one can draw conclusions about Krupp artillery served by raw recruits.

Field Marshal von der Goltz taught the Turkish army all that it ever knew about modern fighting except courage, which it is unnecessary to teach a Turk. He has also taught the German army much of what it knows of the technique of fighting, and the German army is not handicapped by Kismet nor by unmilitary politics. Baron von der Goltz out of his uniform would fit convincingly into a professor's chair at a university. He is now seventy years old, and for more than fifty years of his life has been working and writing and fighting. Being a first rate fighting man has not hindered his writing a number of historical books which are standards in and out of Germany.

PRIME MINISTER IVAN GOREMYKIN OF RUSSIA

A STRONG hand on the wheel of statecraft in Russia to-day is that of the economist and sociologist, Prime Minister Ivan Goremykin.

Goremykin was born in St. Petersburg in 1848. He received a good academic training in that city and graduated from a university. He became interested in his country and when twenty-one years published his first book. Later on he wrote a history of the [illegible] peasants, and with the success of this [illegible] added another volume entitled "The La[illegible] the Russian Peasants." These efforts [illegible] in things pertaining to his country [illegible] attention of his Government [illegible] make him Chief of the Emigration Dep[illegible] into Siberia.

Eventually he rose to be Minister [illegible] terior and in 1906, Prime Mi[illegible] country was in a revolutionary [illegible] Witte had resigned. Goremykin [illegible] the Duma that amnesty was impo[illegible] sia in the case of persons guilty of [illegible] other acts of violence. He also [illegible] the agrarian possibilities could be [illegible] by time. He then submitted a [illegible] reform. The Duma would not [illegible] reforms. Revolutionary disturbances [illegible] menced. The massacre of the Jews [illegible] and a clash came when the agrarian [illegible] were renewed. Goremykin was [illegible] replaced by Stolypin, who was later [illegible]

During the next few years Goremykin [illegible] no active part in any official position, but [illegible] as advisory functionary to the Czar in all [illegible] ters relating to economic and social questi[illegible]

Goremykin's plan for the salvation of [illegible] is economic. His whole wish is to dist[illegible] the people over the different territories. [illegible] call him an old-time conservative who [illegible] things to go his way in slow, steady pace[illegible]

GENERAL PUTNIK OF SER[illegible]

THE commander-in-chief of the [illegible] army, General Radumil Putnik, [illegible] self-made man about sixty-fi[illegible] of age who has worked himself up th[illegible] Servian wars and revolutions until to-[illegible] stands a conspicuous figure before the [illegible] He was born about 1849 in a small pla[illegible] Belgrade in the southern part of Austri[illegible] is a thorough-born Servian despite th[illegible] He is a small man, of large, round head, ch[illegible] brown eyes, and a beard cut in Van Dyke fa[illegible] His whole occupation has been as a soldie[illegible]

General Putnik gained his earliest trai[illegible] a military academy which then existed i[illegible] via. He joined the army voluntarily. [illegible] on he went to France to study the m[illegible] tactics of Napoleon. These experiences [illegible] gave him satisfaction, as he has not succ[illegible] to any other method but his own. He is [illegible] tically a self-taught man.

In the recent war between the Balkan [illegible] he was chief of staff of the Servian army.

As a general he strips his uniform of [illegible] trappings and tinsel and appears in plain [illegible] imental apparel with the two straps o[illegible] shoulders as insignia of his rank. He has [illegible] opportunity to make large sums of money [illegible] as his wants are simple he used his funds t[illegible] dow schools. During the Balkan troubl[illegible] directed his forces from a small shanty by [illegible] use of the telephone.

CHIEF OF STAFF GENERAL PUTNIK (RIGHT)
WHO DIRECTED SERVIA'S ARMS AGAINST TURKEY

PRIME MINISTER N. P. PASHITCH
THE GUIDING SPIRIT IN SERVIA

KING PETER OF SERVIA AND THE CROWN PRINCE
WHO SERBS HOPE WILL RULE OVER A GREATER SERVIA IN THE BALKANS

KAISER WILLIAM II OF GERMANY

"NO GREAT DECISION CAN ANY LONGER BE TAKEN WITHOUT GERMANY AND WITHOUT THE GERMAN EMPEROR" — EMPEROR WILLIAM'S SPEECH, JULY, 1900

THE "IRON CHANCELLOR" AND THE PRESENT GERMAN EMPEROR

I II INHERITED FROM BISMARCK THE TRADITION OF GERMAN IMPERIALISM AND MILITARISM, BUT NOT THE SAGACITY WITH WHICH BISMARCK USED THEM

WN PRINCE FREDERICK WILLIAM

N COMMAND OF AN ARMY CORPS IN THE PRESENT WAR

OTTO VON BISMARCK

WHO MADE A UNITED GERMANY, "NOT BY SPEECHES AND MAJORITY VOTES BUT BY BLOOD AND IRON"

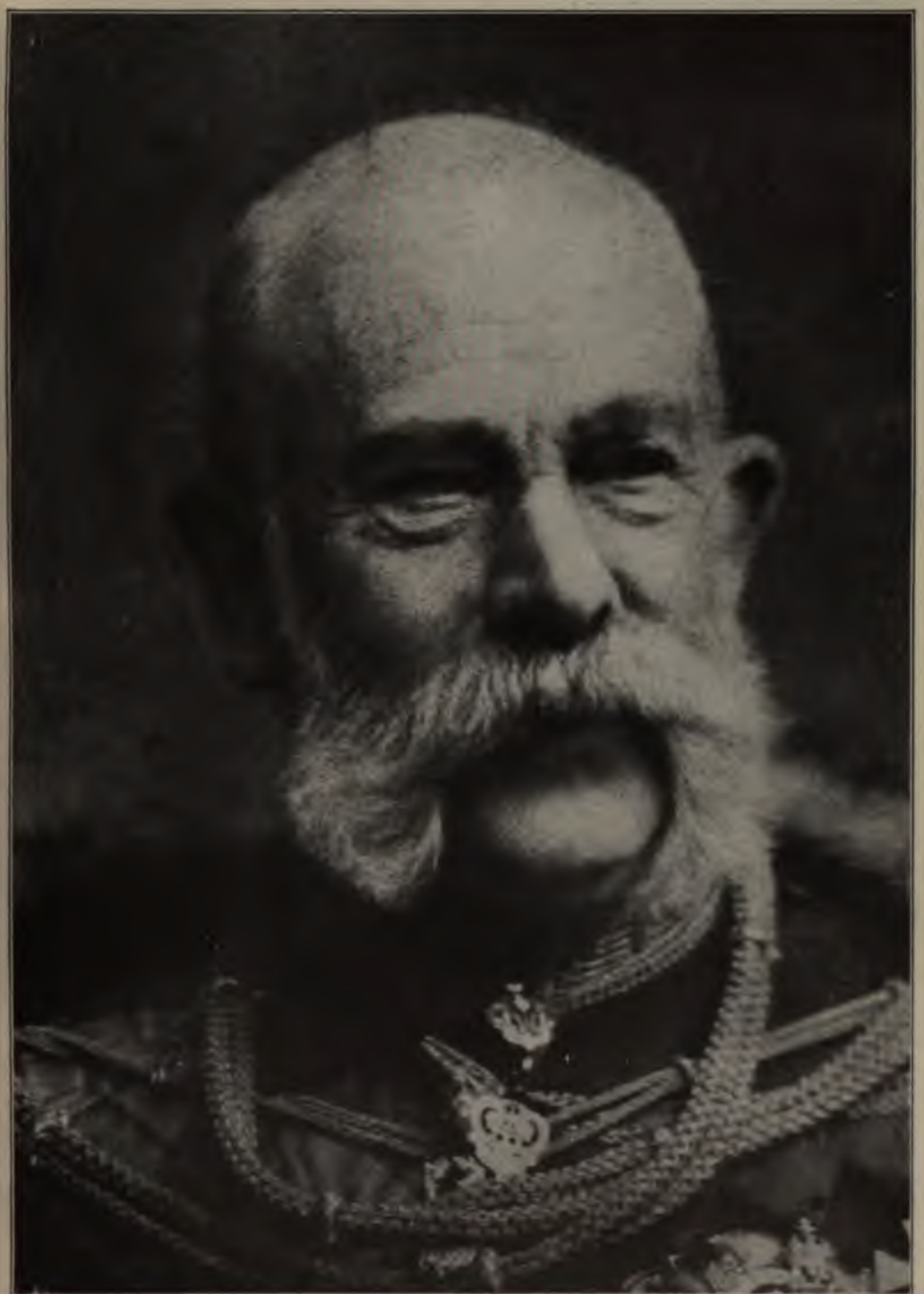
SEA LORD AND CHANCELLOR

ADMIRAL VON TIRPITZ (LEFT), CHIEF OF THE ADMIRALTY AND CREATOR OF THE GERMAN NAVY; AND DR. VON BETHMANN-HOLLWEG (ABOVE), IMPERIAL CHANCELLOR, THE FOURTH TO HOLD THE OFFICE SINCE BISMARCK

GENERAL VON MOLTKE, CHIEF OF STAFF

A NEPHEW OF THE FAMOUS VON MOLTKE IN COMMAND IN 1870-71

MINISTER OF WAR, GENERAL VON FALKENHAYN



EMPEROR FRANCIS JOSEPH

A MUCH BELOVED RULER WHO HAS REIGNED 65 YEARS OVER A POLYGLOT DUAL MONARCHY WHICH MANY PEOPLE HAVE BELIEVED WOULD DISINTEGRATE UPON HIS DEATH

COUNT BERCHTOLD, THE AUSTRIAN PREMIER

WHO PLANNED WAR AGAINST SERVIA TO SUBDUE SERB AGITATION IN HUNGARY AND TO STOP THE SLAV DOMINATION OF THE BALKANS. OTHER PICTURES: (ABOVE) COUNT VON HOTZENDORF, HEAD OF AUSTRIAN ARMY; (BELOW) ARCHDUKE CHARLES FRANCIS, HEIR TO THE AUSTRIAN THRONE

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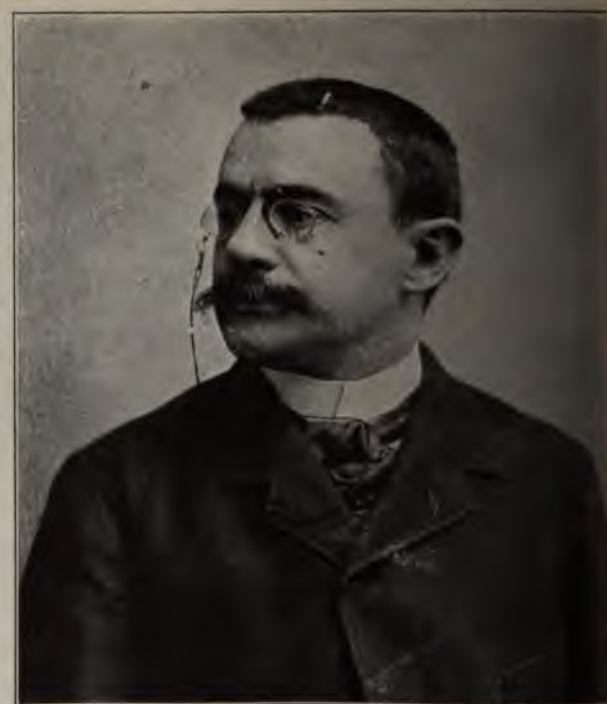
EMPEROR FRANCIS JOSEPH AND THE MURDERED ARCHDUKE, FRANCIS FERDINAND

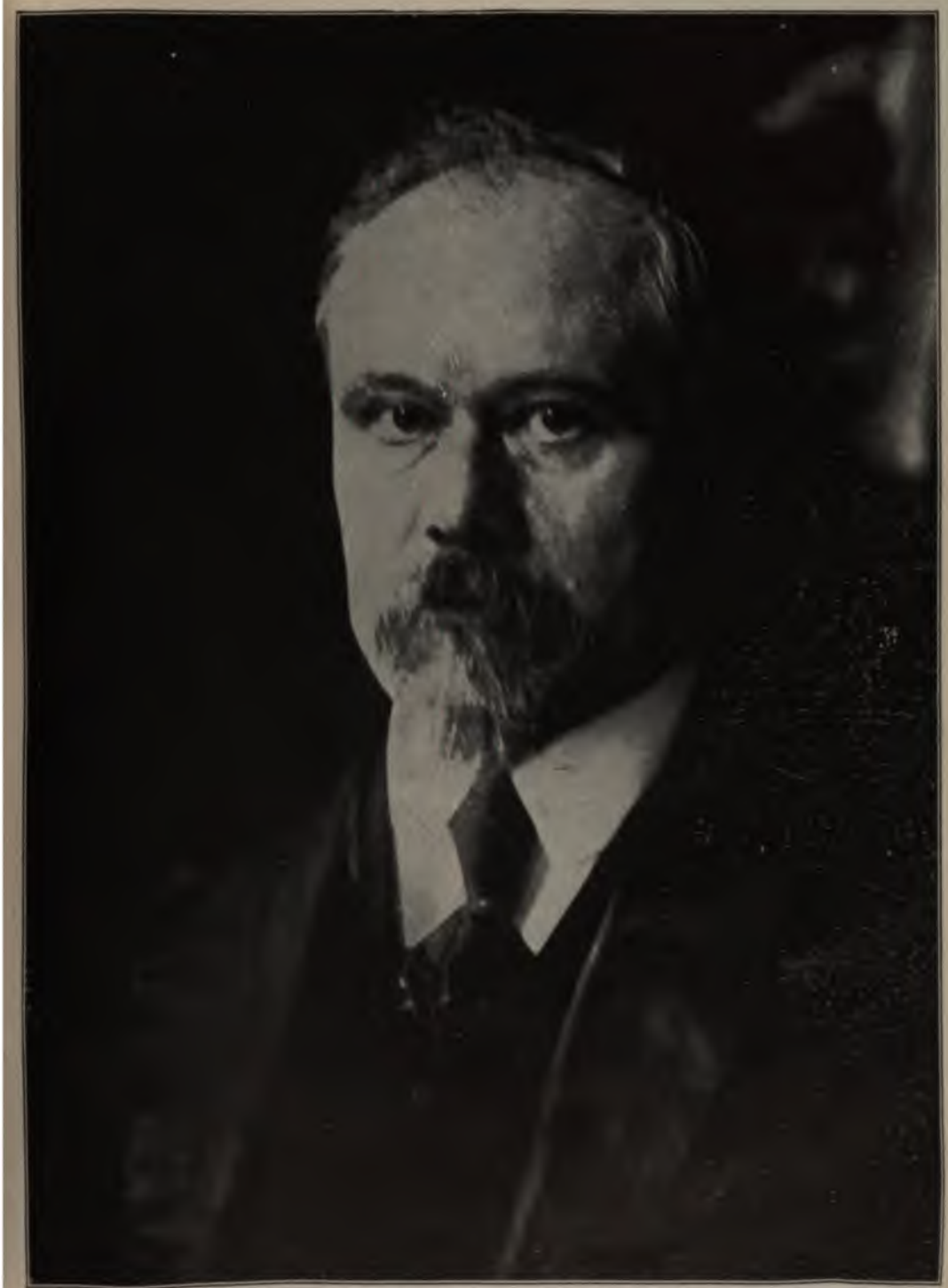
THE ARREST OF THE ASSASSIN IN THE STREETS OF SARAJEVO, BOSNIA

THE ASSASSINATION WAS USED AS A CAUSE FOR WAR BY AUSTRIA



LEADERS OF FRANCE

GENERAL JOFFRÉ (LEFT) SUPREME COMMANDER OF THE FRENCH ARMIES; M. DELCASSÉ (UPPER) PREMIER IN 1898, THE FATHER OF THE ENTENTE CORDIALE WITH ENGLAND; PREMIER VIVIANI (LOWER), WHOSE CABINET WAS FORMED SHORTLY BEFORE THE WAR



M. RAYMOND POINCARÉ, PRESIDENT OF FRANCE

"OUR WORDS OF PEACE AND HUMANITY WILL BE ALL THE MORE LIKELY TO BE HEEDED IF WE ARE KNOWN TO BE MORE DETERMINED AND BETTER ARMED"—PRESIDENT'S MESSAGE, FEB. 20, 1913

SIR EDWARD GREY (LEFT) AND PREMIER ASQUITH

THE GUIDING SPIRITS OF THE BRITISH CABINET IN THE WAR CRISIS. SIR EDWARD G HAS DIRECTED ENGLAND'S FOREIGN POLICY FOR THE LAST NINE YEARS. MR. ASQUITH, WHO WAR SECRETARY AS WELL AS PRIME MINISTER, RESIGNED THE WAR PORTFOLIO FOR APPOINTMENT OF EARL KITCHENER

RL KITCHENER, OF KHARTOUM (LEFT), AND SIR JOHN D. P. FRENCH

RL KITCHENER IS GENERALLY CONSIDERED THE ABLEST ACTIVE SOLDIER IN GREAT BRITAIN. OHN D. P. FRENCH, WHO WAS ONE OF THE FEW ENGLISH OFFICERS WHO GAINED DISTINCTION UTH AFRICA

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THE DIRECTORS OF ENGLAND'S DESTINY AT SEA

SIR JOHN R. JELLICOE (UPPER LEFT), IN COMMAND OF ALL THE FLEETS; SIR GEORGE CALLAGHAN (RIGHT), COMMANDING THE NORTH SEA FLEET; FIRST LORD OF THE ADMIRALTY WINSTON CHURCHILL (LOWER LEFT), WHOSE PROPOSAL TO GERMANY IN 1912 TO REDUCE NAVAL ARMAMENTS WAS MET BY AN INCREASE OF SIX BATTLESHIPS IN THE GERMAN FLEET

AN UNNATURAL ALLIANCE—THE CZAR AND KING GEORGE V

RULERS WITH A LONG-STANDING COLONIAL RIVALRY AND OPPOSING POLITICAL BELIEFS; AUTOCRAT AND CONSTITUTIONAL MONARCH, DRAWN TOGETHER, AS AGAINST NAPOLEON ONE HUNDRED YEARS AGO, BY THE KAISER'S AMBITIONS IN THE NEAR EAST AND ON THE OCEAN

THE RUSSIAN MINISTER OF FOREIGN AFFAIRS, M. SAZONOFF AND (ON THE RIGHT) RUSSIAN AMBASSADOR TO GERMANY

GRAND DUKE NIKOLAS NIKOLAIVITCH

COMMANDER AT ST. PETERSBURG, AND, WITH GENERAL SUKHOMLINOFF, CHIEFLY RESPONSIBLE FOR PRESENT STATUS OF THE RUSSIAN ARMY

GENERAL SUKHOMLINOFF
THE RUSSIAN MINISTER OF WAR

THE CZAR AND PRESIDENT POINCARÉ
ON HIS VISIT TO RUSSIA IN JULY FROM WHICH HE HURRIEDLY RETURNED JUST BEFORE HOSTILITIES BEGAN

THE MARQUIS OF SAN GIULIANO AND VICTOR EMMANUEL III.

THE MINISTER OF FOREIGN AFFAIRS AND THE KING WHO REFUSED TO PLUNGE ITALY INTO THE WAR STARTED BY ITS ANCIENT ENEMY AND PRESENT ALLY, AUSTRIA

THE KING OF "THE COCKPIT OF EUROPE"

KING ALBERT OF BELGIUM. THE GERMAN VIOLATION OF HIS TERRITORY WAS MET BY AN UNEXPECTED RESISTANCE FROM BELGIUM AND BY ENGLAND'S ENTRANCE INTO THE WAR

NEW THINGS IN WAR

TURRETS ON LAND — RUSSIA'S MONSTER AEROPLANE AND SUBMARINE — THE FRENCH ZEPPELIN DESTROYER — MINES ON LAND AND AT SEA

BY

JOHN. S. GREGORY

VAR is now waged on earth, in the air, on the sea and beneath the waters thereof with the aid of numerous devices never before tested in actual hostilities. Aero-, automobiles, and submarines have ised in previous wars, to be sure, but on y more than an experimental scale. All been greatly improved since these tests any accessories have been added. Rad-anges, believed to be improvements, have een made in more familiar material and ds. Altogether, some of its devotees to believe that the art of war has been tionized. Whether it has or not the will soon know.

t spectacular of new developments in e is the advent of the airship and the ine on an imposing scale. Military ities of all Europe appear to have be-onvinced of the value of these new fight-chines. At least, France, Germany, and , and more recently, England, have dis-an energy amounting to frenzy in the pment of these machines. With a cur-ppropriation of $32,500,000 for the pur-ermany set out to offset England's naval acy by building a great fleet of dirigibles. t the British war department professed f at Germany's purpose; but after con-ting the possibility of a fleet of airships across the North Sea a comprehensive mme for building air craft was under-in haste.

ions have been lavished on experiments ir craft, aviators have been drilled by ds, every contingency in war that could seen has been tested at the annual army ivres of the great nations. The result en the development of two widely differ-es of flying machines, each of which has peculiar sphere of usefulness.

nany pins her faith to the dirigible, Dreadnaught of the Air," of which two al types have been developed, the Zep-and the Schuette-Lanz. These monsters m 400 to 500 feet long, have a speed of 50 iles an hour, a cruising radius of 1,200 to iles, and a carrying capacity of from eight ons. They are armored against rifle and e gun bullets, carry small guns, wireless ph, and a crew of 20 to 30 men.

n indication of their reliability, the Zeppelin Company announced that out of 334 days from January 1, to December 1, 1912, their airships flew on 308 days, being up a total of 1,167 hours and covering a distance of 41,145 miles and carrying a total of 10,291 persons, including 5,609 members of the crews and 4,682 passengers, all without a single fatal accident.

From the German point of view these craft are battleships of great destructive power, for they can release half a ton of explosives at once; and in experiments they have completely shot to pieces the silhouette of a village from an altitude of six thousand feet. Another, flying at an altitude of three thousand feet, got the range of a canvas target representing a boat on Lake Constance at the third shot, and then scored nearly one hundred per cent. of hits. These big ships have a platform on top of the gas bag on which a machine gun is mounted as a protection against aeroplanes.

Against these bulky and somewhat clumsy dirigibles France has developed the "Zeppelin Hunter," an aeroplane, armored against machine gun and rifle bullets, carrying two or three men besides the pilot and a couple of machine guns. The French regard an encounter between an aeroplane and a dirigible as a climbing contest. The strategy of the aeroplanist is to get above his big and awkward antagonist just as a king-bird gets above a hawk, and from this superior height to drop explosives upon the big fellow. The dirigible, on the other hand, depends upon its superior armament and the far greater steadiness of its gun platform to protect it from the aeroplane.

These widely different types of air craft are expected to play two distinct rôles: the dirigible is a fighting machine to be directed against troops in the field, and more especially against the works of the enemy, trains, bridges, magazines, etc., and to protect its own lines from incursions by hostile aeroplanes on scouting expeditions. The chief value of the aeroplane is in reconnaissance. Its superior speed is expected to enable it to elude dirigibles. Only in an incidental way is it expected to assume the offensive, with its machine gun or by dropping bombs.

An exception to this is the giant Sikorsky aeroplane, a Russian machine capable of carrying seventeen men. With its great bulk and comparatively slow speed this recently invented type must necessarily be a fighting machine rather than an aerial scout.

Notwithstanding the frequency of tragedies in the air the aeroplane also has been developed into a fairly trustworthy machine. Colonel Seeley surprised the British House of Commons last April by informing it that there were only six days in the preceding year on which there had been no flights by British army aviators, and that there had not been a single fatal accident or the breakage of any main part of a machine while in the air.

In France, where the aeroplane is considered more valuable than the dirigible, the aviation corps has been organized with the *Escadrille* as the unit. The personnel and material of the *Escadrille* is designed with the object of keeping six machines in the field. Its transport consists of three automobiles for the crews, two motorcycles, six motor trucks with "prolonges," an extra pair of trailing wheels on which the aeroplanes, folded, are hauled, and two workshops on motor trucks. One of these aviation camps was struck, packed, and ready to move in less than an hour at the 1913 manœuvres.

THE NEW ART OF OBSERVATION IN MIDAIR

The aeroplane scout must fly high and swiftly to avoid hostile bullets. At an altitude of three thousand feet, at which he is fairly safe, he has a range of vision of four to five miles. Troops on the march can be seen and their number estimated by the road space occupied. Artillery in action is easily distinguishable, as are cavalry and transport of all kinds on the move. Massed infantry in the open is fairly distinct, though khaki-clad men in open order or moving over stubble or plowed fields are difficult to distinguish, and they are not always readily seen on grass. The flying scout can readily obtain an idea of trenches, outposts, and methods of occupation of bridges and fords. Field works, if their color and outlines do not blend with the landscape, can be seen at a distance of five miles, though they are not readily distinguishable. It is difficult for the aviator to tell "dummy" trenches from real ones.

French aerial scouting is superb. The commanding general can count on having any specified region examined. The art of observation from midair has been reduced to a system as exactly regulated as that of cavalry reconnaissance. British aviators have also distinguished themselves by their success in aerial scouting.

Yet there is another side to the story, for aviators are as far from perfection as their fellow mortals are in other ways. At the 1913 manœuvres, a French general and his staff were surprised and captured despite the utmost vigilance of his aerial scouts. A British "Blue" division of twelve thousand men with horses stole a march of sixteen miles on the "Red" division while the aerial scouts of the latter were hunting for it. The men skulked along under hedgerows and other cover while guns and transport wagons were hidden under straw so that they might be mistaken for farmers' wagons. Whenever a "Red" aeroplane came into view a whistle from the "Blue" lookout every man to crouch in his tracks, or u nearest cover. Aerial scouts have been edly deceived in German manœuvres.

Although the Germans claim to have bombs from an altitude of five thous on a target fifteen feet in diameter, extr claims regarding the effectiveness o bombs must be accepted with reservat a lecture before the Brooklyn Aero Association, Mr. Hudson Maxim, who conceded to be an authority on explosi that explosives so powerful and des when employed in aerial bombs as expectations and predictions of th mongers could not be made. The de power of torpedoes and shells is enormo favorable conditions, but never so gre average man supposes after a short blood-curdling aerial fiction. Experime dropped live shells and explosives sho although they might land within a re short distance of the target it was just tance that made all the difference in t ing damage; for the effects of high e are very local. Furthermore, the m of a heavy object falling from a great so great that it is buried in the ground force of the explosion is thus ne Judging from analogy with artillery against towns, aerial bombs are not w time, energy, ammunition, and risk t volved. In the Boer War, Ladysmith w the battering of twenty thousand or m with practically no damage. Simila were observed at Pretoria. Lyddite s caves and made breaches in the walls at Omdurman, but did little real dama

Experiments in defense against host planes and airships have been quite as e as those in offensive operations. It h found, for instance, that at 3,000 feet plane is a hard thing to hit, though ex in actual warfare has shown that an ae affords a pretty good target.

AEROPLANES VERSUS SUBMARINES

A curious development in aerial nav has been the pitting of the airship agai submarine. In fairly clear and smooth submarines and even submarine mines readily seen from the lofty outlook of ship or aeroplane. As the submarine slowly when under water a battleship g by aerial scouts might be able to manœu of the way. It has also been proposed the airship as a mine destroyer by d bombs near enough to the mines to them, the ships following close enough wake of the aerial pilot to avoid othe outside the cleared zone.

At all events, England regards the as such an important naval auxiliary t dirigibles have all been turned over to th the army retaining only aeroplanes. T also has a number of seaplanes, and th

ation for the current year carries an $400,000 for the construction of a new carrying seaplanes. This will be the ;el of the kind ever constructed for this ›urpose, though France has two make-sels of the kind.

;ories to be used by or in connection craft are innumerable. Although Ger-as no fewer than thirty airship sheds Berlin and the frontier of France, spe-oad cars have been provided with steel o be kept filled with hydrogen gas with o inflate the huge dirigibles. These always ready and can be rushed any-ıey may be needed in a hurry. The stations are equipped to facilitate ›rk, being provided with colored elec-ıes, each station having its own code 's for aerial pilots. The dirigibles are l with searchlights to aid in alighting. ctual number of craft in these aerial known only to their respective govern-Published statements differ so widely following figures can be offered only as ' the most trustworthy approximation:

DUAL ALLIANCE

	DIRIGIBLES	AEROPLANES
. . . . .	22	320
lungary	7	100
	29	420

TRIPLE ENTENTE AND ALLIES

	DIRIGIBLES	AEROPLANES
. . . . .	16	834
. . . . .	10	164
tain	6	250
. . . . .	2	40
. . . . .	—	10
;ro	—	1
	34	1,299

'man bomb designed for use from the hs twenty pounds and is charged with unds of trinitrotoluol and 340 steel ;o guard against mishaps it has a safety that it will not explode until a fall of at › hundred feet allows a revolving vane ;w the safety catch and bring the firing :ontact with the explosive. A slight ll then set off the bomb.

;rupp works have devised a fire bomb eds a bright light during its flight to the d after it strikes so that airship gunners ıble to aim accurately during the dark-.

er German bomb for the use of aero-and airships releases a tremendous of dense smoke which spreads in a ›ud, under cover of which the aviator sibly have a chance to make his escape. ınother bomb is charged with 150 of chemicals which, upon exploding, sed to fill the air with gases so poison-every living creature within a radius dred yards will be killed, and the influence of the gas is expected to extend to a lesser degree to twice that distance.

The French have a message carrier, to be dropped by an aviator who wishes to continue his flight, consisting of a brass tube in which the message is enclosed with a charge of Bengal fire, which is ignited by a firing pin on striking the earth. The fire and smoke mark the spot long enough for a man to reach it from a distance of three hundred yards.

Progress in submarine craft and projectiles has been as marked as in airships. Submarines are older than the flying machine but, even so, their size, trustworthiness, and radius of action are amazing. A typical submarine may be said to be 148 feet long, by 15 feet in diameter, and to be capable of a speed of eleven knots on the surface and five knots submerged. Some of the more recent have a radius of action of 4,500 miles; that is, they could cross the North Atlantic without replenishing their fuel and stores. While cruising on the surface they are propelled by gasolene engines. In running submerged they use electric motors that are driven by storage batteries, which are charged by the gasolene engines while on the surface. They are not a particularly comfortable craft, even for the most seasoned mariner; but they can go anywhere at any time. If the weather gets too rough they can submerge and thus escape the worst of the wave motion. In tests submarines have stayed under water for twenty-four hours at a time.

Russia, which has produced a successful aeroplane vastly larger than any other nation has ever thought of building, also has under construction a submarine so enormous that all others seem pigmies by comparison. This great submarine cruiser is 400 feet long, 34 feet beam, and of 5,400 tons displacement, which is eleven times the size of the next largest craft of the kind. Its engines of 18,000 horse-power are capable of driving it at a speed of 26 knots on the surface, and its motors of 4,400 horse-power are capable of maintaining a speed of 14 knots submerged. Either on the surface or beneath the waves the giant Russian is capable of swiftly overhauling any other vessel of its kind. It has a cruising radius of 18,500 miles, and can run under water a distance of 275 miles at a stretch. Its armament consists of five 4.7-inch. guns for surface fighting, and 36 torpedo tubes, of which 16 are on each broadside. It carries sixty torpedoes and 120 mines, for it is equipped for laying mines. It is capable of creeping into an enemy's harbor under cover of darkness so that no lurking aeroplane can discover it, surrounding the hostile fleet with mines so that certain destruction will follow any attempt to move, and creep away again, and be not only out of sight but also beyond suspicion when the tragedy it has prepared is enacted.

As a protection against their new enemy, the flying machine, German submarines are now equipped with a machine gun which folds down

within the hull when cruising either on the surface or submerged. If an inquisitive aeroplane comes too near, the submarine can rise to the surface while a man climbs out, fishes up the machine gun, and attacks the aerial enemy.

The unvarying accuracy of the new gyroscope compass is expected to be of great value in enabling the submarine to stalk its prey with the least possible risk to itself. A hostile ship can be located at a distance of eight miles, after which the submarine can run fully submerged with the aid of the gyroscope compass to within striking distance.

A TORPEDO THAT WEIGHS 1600 POUNDS

Great improvements have also been made recently in the torpedo. Lieutenant Hardcastle, of the British Navy, has perfected a torpedo that weighs 1,600 pounds and that carries a charge of 250 pounds of guncotton, enough to blow the whole side out of a battleship. It has a range of 7,000 yards, or about four miles. In this case, too, the gyroscope plays a vital part. A torpedo fitted with the new gyroscope is more certain of hitting its mark than the big guns. Furthermore, the gyroscope rudder can be set so that the torpedo can be fired from the broadside of a ship, when it will turn through an angle of ninety degrees and run dead ahead to its target.

Other great improvements that have completed the revolution of the torpedo are the substitution of the turbine engine for the old three-cylinder engine of the original Whitehead torpedo, and a method of heating the compressed air that furnishes the power. Air under high pressure is contained in a flask within the torpedo. When the latter is fired a valve is opened, admitting air to the engine through a reducing valve which brings down the pressure to 300 pounds. As the flask is emptied the temperature falls, sometimes below zero. This freezes oil on the bearings and generally retards the torpedo and renders it ineffective. By adding a flask of alcohol with a method of igniting it when the torpedo is fired, the air is heated after leaving the reducing valve and before entering the turbines, thus greatly increasing its efficiency. When the pressure in the air flask is reduced and the temperature falls another burner is automatically lighted that heats the air flask itself, thus preventing freezing. This quadruples the range of the projectile. According to the best available information the submarine equipment of the five warring nations is as follows:

SUBMARINES

Great Britain	64
France	61
Russia	29
Germany	18
Austria-Hungary	6

These figures are a year old. Facts about submarines are jealously guarded military secrets.

One of the most notable phases of the campaign will be the wonderful revolutic in transportation methods by the a and motor truck. On the battlefiel where, the horse is yielding to mc vehicles the place he has held so recent years Germany, France, anc have systematically subsidized motor condition that they should be av: governmental use in case of need. In by complying with certain condition: chaser of a motor truck receives a $1,000, to be applied on the purchase $250 a year for upkeep for four yea subsidized trucks must carry a load pounds and haul a trailer besides, t of running ten miles an hour with fu able to climb a 14 per cent. grade, ai to haul a second trailer if necessai hundred subsidized trucks were avail: January 1, 1912. The number has materially increased, and, besides, th ment has the power to requisition ev vehicle in the Empire. At the very of hostilities it even exercised the p requisitioning the automobile of a American ladies who had innocent the frontier.

Even the motorcycles are subsidize the war began a force of 2,000 subsid cyclists, or *schnellfahrer* (fast riders), a mans call them, were ready for inst: in carrying dispatches, reconnoitrin like. In times of peace, these *sc* have the blessed privilege of disreg speed limitations, are paid $2.50 a da œuvres, are protected against loss o sitions while serving the Governm their machines repaired at the Gov expense in case of accident, and are t cared for in hospitals without expen get hurt while riding. In case of mc they are paid full value for their machi

In France the owner of a three-t truck can get a governmental subsid and $200 a year for upkeep for thi Here, too, the Government freely exe right to take possession of all motor if needed. All the taxicabs in Paris w mandeered at the beginning of hostilit

Great Britain allows a subsidy of to $60, and $75 a year for upkeep. Hungary also subsidizes motor vehi requisitions all that are needed.

The result of all this is to render th in the field to-day mobile beyond th dreams of strategists of a former gene

Artillery, which has been so radic proved that it now plays a far more in part in deciding battles than it ever di is hauled by motors to a large exten armies of all the countries now at war, e the big guns. The French gave their tractors an elaborate test in the 1913 vres. These tractors are of a special t of 35 horse-power. They are equippe winch and chain cable for pulling the

mud. They can carry a load of two and f tons and draw fifteen tons additional speed of fifteen miles an hour and climb le of 10 per cent., with a full load. In an ency the speed can be considerably in- d.

erything that an army in the field needs, n use, is now provided, mounted on motor s, though such equipment is by no means rsal. There are auto ambulances, auto ns, auto wireless outfits, armored autos, ng and office autos for the generals, and l airship guns for firing at a high angle ted on motor trucks.

Russian automobile field kitchen consists notor truck carrying the stock of provi- and a trailer containing the kitchen de- l to prepare food and coffee for 250 men time, or 2,000 men in twenty-four hours. itchen includes a twenty gallon coffee pot kettle of a capacity of 53 gallons that is ed with glycerine, which retains the heat at the contents continue to cook after the out and keep hot for six or eight hours well known fireless cooker principle. Food offee are transferred to fireless cookers to ken to the men in the field.

commander has ever been able to keep in fect touch with all the units of his force as in the field to-day, for in this line also have been improvements in recent years. portable field wireless telegraph is being or the first time in a great war. Portable ss sets of various sizes are made for use in ld. One outfit is transported on a single n. It has telescoping masts that can be in a very short time, and a gasolene mo- r driving the generator that furnishes the it. A still smaller outfit which can be d on three horses has a generator that is by cranks turned by two men.

field telegraph and telephone, which have ed good service in former times, have developed into a combined instrument the size of a large field glass and weighing inds. An insulated field wire weighing 75 s to the mile, which can be used lying on ound, can be laid from a reel on an auto miles an hour, or it can be carried on back, or a man on foot wearing a reel ed to his breast can creep right up to the line, where he can establish a station sim- y thrusting a steel ground rod into the

The commander can maintain commun- n with each unit of his force at all times, ese lines can be laid as fast as troops can ce against the enemy.

vever, the modern commander is by no dependent on the field telegraph or tele- to keep in touch with his troops. He as aeroplane and motorcycle messengers, s the signal flag and the heliograph, all have their place in the equipment of the n army. Even the homing pigeon, which sed for carrying messages in the days of araohs, still has its place in the scheme of military organization, for the wireless telegraph and the motorcycle can no more supplant these time-tried messengers than the aeroplane scout can take the place of cavalry. But even the homing pigeon has been modernized. In no previous war did pigeons have the advantage of military training

The famous performance of these winged messengers during the siege of Paris in the Franco-Prussian war, when they carried upward of forty thousand messages, was the result of an inspiration rather than of forethought. Private citizens who chanced to have pigeons offered them to the Government. Their performance was such a splendid success that France has ever since maintained large flocks in charge of the engineer corps. The birds are carefully trained as soon as they are able to fly and are then drilled daily for the rest of their useful life. They are taught to fly and to alight on signal. The first thing Bismarck did after the treaty of peace was signed was to establish pigeon lofts in Berlin and elsewhere throughout the Empire. Every other nation in Europe followed his example, and to-day every Government has thousands of pigeons, all ready to carry messages in time of war.

At the siege of Port Arthur the Japs made such effective use of improvised hand grenades that the attention of military experts was attracted, with the result that this ancient weapon has also been modernized. One type of modern hand grenade, the Aasen, weighs one kilogram, and contains 190 bullets. As these fly in all directions, it can be used only from under cover. Another form of the grenade can be fired from a "howitzer" weighing about twenty-four pounds, which can be carried in a case like a rifle. It throws a murderous missile weighing about two pounds to a distance of three hundred yards. It explodes on contact, scattering 215 bullets over an area of about 100 square yards. Still another type of this so-called grenade can be fired, with the aid of a stick thrust into a rifle barrel, to a distance of four hundred yards.

Most deadly of all is the mine "grenade," weighing eight pounds and containing 400 large bullets. This is buried a few inches underground. When the enemy is over the mine the touch of an electric button causes it to spring out of the ground until it is checked by a chain at a height of a yard above the surface, when it explodes, mowing down every man in the vicinity.

The mine at sea is not a new device, but it has been brought into particular prominence by the sinking of the first British warship, the cruiser *Amphion*. In the Russian-Japanese war the Japanese used electro-mechanical mines as well as free mines around the harbor of Port Arthur. The Russian flagship, the *Petropavlovsk*, was blown up by the mines set off by electricity. On the other hand the Japanese themselves were literally hoist by their own petard, for they lost two of their largest ships, the *Hatsume* and the Yashima, from the free

mines that they loosed for the destruction of the Russian battleships.

Every decade in the last half century has seen an improvement in the accuracy, range, and power of heavy artillery and the destructive power of the projectiles.

The Belgian resistance at Liège has drawn public attention to modern fortresses and their defence. Heavy shells fired from long ranges will penetrate as much as twenty feet of sand, which offers more resistance than other soils. Moreover, a shell which explodes after it has penetrated soil will cause more damage than if it explodes in the air, on account of the confinement of the earth it has penetrated. Walls exposed to fire are therefore made of from five to ten feet of concrete, sometimes reinforced with steel. Over these there is a few inches of dirt as a bed for grass, so that the fortification may be concealed.

In practically every European country either turrets or iron and steel revolving cupolas containing guns such as those at Liège are in use. The cupolas are a kind of flattened dome, and the turrets are flat topped like those aboard ship. There are "disappearing" cupolas mounting small guns, oscillating cupolas set up on edge and balanced by springs which turn the cupola forward after a shot is fired until the gun is under cover, and others that move on a central pivot. There are large single gun cupolas with very heavy armament and smaller ones of light batteries. There are even portable ones.

The value of night attacks, always more or less appreciated by military commanders, was emphasized in the Russian-Japanese War, with the result that troops have been specially drilled in this form of operations, and numerous devices for offense and defense have been invented. One of these is the portable searchlight with which all European armies are provided to some extent at least. These consist of a generator driven by a gasolene engine mounted on an automobile. These are especially relied upon for protection in case of attack by a dirigible, and also in attacks on the ground. Without light, artillery would be of little use in a night attack; but with a searchlight playing upon an assaulting column, it can be used with deadly effect.

In the absence of a searchlight a force may be equipped with parachute lights, a sort of grenade weighing fourteen ounces which, with the aid of a firing stick, can be shot from a rifle to a distance of fifty to a hundred yards, where it will float in the air and burn brilliantly for a half to three-quarters of a minute. A larger form of parachute light fired from a field gun with a small charge of powder floats in the air, giving a dazzling light for several minutes.

A phase of the war of interest to the military expert is the fact that an American invention, the gun silencer, devised by Hiram Percy Maxim, of Hartford, will be given a thorough trial. There are Maxim silencers in small numbers in each of the nations now The inventor expects that the militar tages of the silencer will be developed, Great Britain demonstrated the value chine guns at the battle of Khartoum. the inventor's father, Sir Hiram Maxi presented his Maxim gun it was consid extremely clever and interesting novel impractical under the conditions of The old argument against Gatling gu revived against it — that ammunition co be supplied fast enough. If it taxed the zation to keep the firing line supplied w munition when men with repeating rifl firing twenty shots a minute, what would if an attempt were made to supply machi firing 650 shots a minute? But when t lish at the great battle of Khartoum w to rout an enormous rush of mounted Eg they decided that the machine gun pretty good thing, after all.

No world power has been at war with world power since the Maxim silencer vented, though very elaborate field tria been conducted. Some of the silence vantages are, according to official repo muffling of the noise of firing, allowing th of the officer to be heard, thus giving control of firing. The nervous strain a sequent fatigue of the soldier due to the ing noise of firing is abolished. Anot portant aspect is that it not only muf noise but at the same time reduces the so that it becomes a gentle push inste sharp blow. The soldier no longer instinctively as he pulls the trigger. conducive to better marksmanship, and, l ishing nervous strain, the soldier is les to yield to panic. The diminution of th of the report increases the enemy's d in locating the firing line. The difficulty further increased by the fact that the absolutely annulled in the dark.

All the foregoing facts show what experiment the present war is. It wil not only the fate of Europe for many y come, as all the diplomatists are pre it will settle the future of warfare itse many respects these new contrivances, l aeroplane and submarine, introduce el that really put a premium upon militar In others, such as the new bombs and t posed use of gaseous fumes, they simp to its most brutal horrors. After cons these new engines, the conviction remai there is only one possible "improveme modern accoutrements. The newspape recently described the so-called inventi young Italian by which explosives co shot off at a distance, something on th less principle. That invention seems to have been a fraud. The idea, he seems to be about the only thing tha make warfare more horrible than it is. this conflict is over, possibly some or actually make it work.

AUSTRIA'S CIVILIZING MISSION

'ERSAL SUFFRAGE UPON THE INITIATIVE OF THE EMPEROR — AUSTRIA'S RELATIONS TO BOSNIA LIKE THOSE OF THE UNITED STATES TO TEXAS — SERVIA'S OPPOSITION TO AUSTRIA'S BENEFICENT WORK

BY

AN AUSTRIAN DIPLOMAT

T THIS portentous moment in history, when the activities of Austria-Hungary in the Near East have suddenly been made a world-issue by the outbreak of the most le war in the history of civilization, the and methods of the dual monarchy are of ıount significance.

ıated upon the outskirts of Central ɔe, in the debatable region between the and the East, Austria stands in a peculiar as the connecting link between civiliza- ınd vanishing barbarism, between to-day 'esterday. The double eagle of Austria symbol that connects racial fragments in 'c bond which spells progress and peace. ims of Austria, whether in the Balkans or ɜr east, are mainly commercial and cul- They are political only in so far as the aphical situation of the dual Empire s it incumbent upon her statesmen to ain her territorial integrity and to provide he normal expansion of her industrial ıt.

ɜ attempt to centralize and Germanize ustrian Empire as a whole has been twice — once under the Emperor Joseph II, d the end of the eighteenth century, and under Francis Joseph after the suppression ɜ revolution of 1848. In each case the pt failed, and it was abandoned as im- cable by the present Emperor-King. ary had always retained its old liberties the hegemony of the Magyars. By the romise of 1867 the dual form of the mon- was definitely fixed. So carefully were ghts of the various races in the Empire ıarded under this readjustment that in ary, for instance, the Croatians were ıized as a separate entity, under their own ır Governor, their separate diet, and their ct machinery of local and provincial ıistration.

Austria proper the constitution of 1867 :d a central parliament in Vienna and large measure of autonomy to the old ıces. One of the most important articles : constitution guarantees to every nation- the free use of its language "in word and ıg." By this means it made forever im- ɔle any attempt to interfere with the legiti- aspirations of the various races in the Empire. In fact, the entire spirit of the new constitution was to assure to each race the greatest and freest use of its language in its educational system, from the primary school to the university, in the diets, in the provincial legislatures and in the administration, excluding only the ministries at Vienna, and in the courts with the sole exception of the Supreme Court in the imperial capital.

Even to this last reservation in favor of a central authority an exception is made. In Polish litigation the entire process of litigation and judicature, including the highest court, may be carried on in the Polish language.

Only in the army common to the Empire is there a common language, and that language is the German. This arrangement is not based upon any propaganda, but is the outcome of the entirely practical consideration that an army made up of so many races as is the Austro-Hungarian would be badly handicapped in the performance of its duties if it did not have a common language of command and communication. The selection of the German language for this purpose was the logical outcome of the German origin of the Empire.

The tangible result of this practically unlimited freedom of race-development is presented by the present complexion of the Reichstag in Vienna. So long as the franchise was based upon property qualifications the votes of the landed proprietors kept a disunited German majority in the Reichstag, but the granting of universal suffrage upon the personal initiative of the Emperor a few years ago resulted in the return of a Slavic majority in the imperial legislative chamber — a remarkable result if one is to believe the persistent charges that Austria has sought to destroy or Germanize the Slavic nationalities within its boundaries.

This presence of a Slavic majority in the chamber has brought about a state of affairs wherein no Austrian administration can neglect the wishes of the Slavic groups without being forced to resort to the short-lived and unpopular expedient of imperial decrees.

Thanks to its liberal treatment of the claims of contending nationalities, the German element in many parts of Austria is already on the defensive, and the ascendancy of the Slav element is more and more felt in the political and intellectual life of the Empire. The Slav has taken

the offensive all along the line, and the Germans have lost many important positions in the civil and financial administration and in the courts. Bohemia is the centre of the Slavic movement. In Prague, the capital of Bohemia, the new Czech university is a dangerous rival to the old German university, the renowned Carolina, founded in 1348 by the Emperor Charles of Luxemburg. This Czech university has become the focus of Slav science, literature, and thought — and, unfortunately, also of pan-Slavic agitation, as hundreds of Servian and Croatian students have flocked to its gates to be imbued with the dreams of the future universal Slavic domination.

In the midst of these contending racial forces, the mission of Austria has been, first, to introduce among the great Slavic populations within her borders the ideals of German culture and German civilization. Her greatest achievements in this direction have been in Bohemia. It is recognized by the Slavic world universally that the Slavic movement in Prague is the outcome of German culture inculcated by Austria. It is one of the tragic circumstances of history that the German culture imparted to the Czechs is now operating in favor of the pan-Slavic cause, intellectual and political.

In the east, the mission of Austria has been suggestively indicated by the flow of the Danube. Eastward and southward, with the current of the mighty river, have gone Austrian cultural and industrial activities, hand in hand. And one of the earliest stations of the commercial and moral expansion — the stations of Austria's *Drang nach Osten* — are Bosnia and Herzegovina.

The destinies of Bosnia and Herzegovina came under the purview of Austria in 1876-77, when the revolutionary movement in the provinces, in conjunction with the Servian war against Turkey, was suppressed with unexampled severities by the Ottoman government. At that time the natural refuge for the stricken Christians of Bosnia-Herzegovina was Austria. Two hundred thousand of them were cast upon the resources of the authorities and had to be taken care of. As there was no promise of the immediate amelioration of the stricken provinces the question of the day at Vienna became the final solution of the problem of introducing order and personal security in the territory infested by brigands and terrorized by official severities, just across the Turkish border.

The relation of Austria to Bosnia and Herzegovina duplicated in a marked degree that of the United States and Texas during the Texan uprising against Mexico, and the solution of the problem in the case of Bosnia and Herzegovina, as in that of Texas, appeared to be an Austrian occupation. This destiny of the distracted provinces was recognized by the Congress of Berlin, which adjusted the affairs of southeastern Europe after the defeat of Turkey by Russia in 1877. The congress, after a thorough balancing of international interests and international jealousies, handed over the t inces to Austria for pacification and ad tion, and conceded to Austria the right t the Sanjak of Novibazar, the narrow territory which lay between Servia a tenegro. This occupation was in the a condominium with Turkey.

Installed in Bosnia-Herzegovina by t date of Europe, Austria entered upon of cleaning the Augean stable of Bosnia with an energetic realization of the di of its undertaking. The first obsta confronted the newly installed authori an uprising of the Begs, or Moha nobility. Aroused by the land-ownir lems, secretly instigated by the Sult undertook to oppose by force of arms th ful entrance of Austria into its new f The outcome of the contumacy of the a six months' war, which ended in the sion of the Moslem resistance and the tion of internal peace. Next, Austria u the task of cleaning out the brigands fested the country and made travel a merce practically impossible.

Side by side with measures for the pa of the provinces and the restoration of order, the new Austrian administratior plished wonders in the construction of of roads, the first that Bosnia and Her had had since the Ottoman conquest.

The land question in the newly provinces was extremely delicate. W tria marched into Bosnia she found survival of the feudal ages in the dis of the land. The entire area of the p with rare exceptions, was owned by t and the tenants who cultivated them scant reward of one-half the produce w condition of peonage. Two alternati tions of the question presented the One was the forcible expropriation of t of the nobles, and the other was the distribution of the holdings through a years.

It is one of the foremost grievance Servian agitators on the Austrian provinces that the administration of t monarchy did not at once proceed to th of the land and its distribution am peasantry by arbitrary means, after the employed by the Servians after the fal Ottoman power in Servia. Such, h was not the Austrian method of deali the rights of property, and it had been stood by the signatories to the treaty o that no agrarian revolutionary measure be undertaken by Austria.

Baron Kallay, the first Austrian c ministrator of Bosnia-Herzegovina, h adopted the much more equitable and whole far more successful plan of enc thrift among the peasants, and at the sa enabling them to achieve independence gradual acquisition of the lands they cul This conservative reorganization of the

of the country was accomplished through of the Land Bank of Bosnia, an insti- of private finance under the rigid super- of the Government. Baron Kallay's , which produced highly satisfactory was carried on by his successors, Burian linski.

educational problem of the provinces less difficult than that presented by the ition of the land. When Austria entered Herzegovina in 1878, she found no there, with the exception of a few classes and madrasahs for the chant- rabic prayers and verses from Al Koran. m attempting to make German the e of the people, or even the language of re highly educated among them, the n authorities at once undertook the hment of native schools, in which the ion should be carried on in Serb or in n, the former written in the Cyrillic or an alphabet, and the latter in Latin ers. Not only was no attempt made duce German schools, but the Govern- leclined to permit the expenditure of money for instruction in any language the two named idioms of the Slavic e.

liberal policy stands out in sharp con- the destructive activities of the Servians ewly occupied Macedonian lands, where ave closed all the Bulgarian schools rcumstances of severity, to which some e is made in the Report of the Carnegie ssion. Certainly there is nothing in ablishment of Serb schools by Austria ia and Herzegovina to justify the con- of the Servians that Austria is seeking h out Serb nationality under the rule double eagle.

rtheless, the Servian propaganda in and Herzegovina, following closely the propaganda in its first stage in Mace- was conducted along cultural lines, quite ss of the palpable fact that the people ia themselves stood in need of all the l efforts of which their Government and nancial resources were capable. This easily demonstrable when it is remem- hat in 1909 the Slavs of Bosnia and vina, after thirty years of Austrian tration, stood higher educationally y of the independent Slavic nations of lkan Peninsula. Despite the mani- ostile purposes of the so-called cultural propaganda in the border provinces, the n authorities took no measures to com- ntil it had entered the phase of bomb- g, in which the Servians had become in the course of their abortive struggle conversion of Macedonia to Serbism. at final and intolerable phase of the tionalist propaganda was close at hand. sis began in 1909, when the Austrian ment declared the annexation of Bosnia rzegovina.

This annexation was based upon three essential considerations, each one of which would have been considered sufficient in itself by any nation. The first of these considerations was the mandate of Europe; the second was the right of conquest, established at the beginning of the occupation by the suppression of the armed resistance of the recalcitrant Begs; the third was the expenditure of about $250,000,000 by the dual monarchy for the construction of railroads and other means of communication, public works of various sorts, and education and local improvements; and the fourth was the duty of continuing a régime which had brought peace and prosperity to the country itself. All the signatories to the treaty of Berlin readily acquiesced in the accomplished fact as a logical outcome of accomplished events.

Servia, however, conceived that it had been robbed by the act of the Austrian Government, and the press of that country launched a campaign of bitter and indecent vilification of the dual monarchy. The contention of the Serbs that they were entitled to the annexed provinces was based upon two considerations, each easily demonstrable as absurd. The first was that Bosnia and Herzegovina had been a part of the great Servian Empire under Stefan Dushan about five hundred years ago. This argument may best be compared with a Mexican claim to Texas because that state had formerly been a part of Mexico. And the Servian pretension to Bosnia-Herzegovina is very much weaker than the hypothetical Mexican claim to possession of Texas, because the inclusion of the contested provinces in the gigantic empire of Dushan (The Strangler), which was only one tenth as large as the State of Texas, lasted, as did the empire, only about twenty years.

The second basis of the Servian claim to Bosnia-Herzegovina is the allegation that the provinces are inhabited by people of Serb race, of Servian language and of Serb faith. Not one of these contentions even approaches the facts. Of the less than two millions of people who populate the provinces, only 800,000 at the most are orthodox Serbs. The remainder are Roman Catholic Croatians, whose written language the Orthodox Serb cannot even read unless he has a knowledge of the Latin characters, or Mohammedans, who detest the Servians heartily and despise them profoundly.

The frothing protests which the Servian press continued to make against the act of annexation, it was realized clearly at Vienna, were instigated partly from St. Petersburg, where the statesmen saw, or pretended to see, a fresh sign of Austrian encroachment upon the Southern Slavs, those dear Southern Slavs whose destinies have been for centuries the pawns on the chessboard of Russian diplomacy. But the Russian statesmen did not observe, or, observing, did not care to admit, that Austria, while annexing Bosnia and Herzegovina, had definitely abandoned her alleged road to

Salonika by the withdrawal of her troops from the Sanjak of Novibazar, which was the key to the military situation in any advance further south and east. A glance at the map will convince even the most hostile critic of Austrian policy in the Balkans that the abandonment of Novibazar by Austria is incompatible with any suspicion of an Austrian design of territorial expansion in the direction of Salonika or of Constantinople.

Thus events wore on toward the culminating tragedy of Sarajevo. In 1913 the Serbs had attained a wild dream through the annexation of a large part of Bulgarian Macedonia by the defeat of Bulgaria in the second Balkan War. The Servian campaign in Bosnia-Herzegovina, following out its previous metamorphosis in the Macedonian agitation that preceded the alliance with Bulgaria for the first Ball emerged from the "cultural" stage an the bomb-throwing phase. The assa of the Archduke Francis Ferdinand and sort at Sarajevo by a young Serb pa summer startled the world and arouse to the imperative need of energetic put a check upon a political and raci ment which had degenerated into a c to commit murder.

The tremendous events which have world in gloom since July 23d are the of Servia's resistance to Austria's dem cessation of this orgy of violence. The have opposed Austria's civilizing miss unpardonable venom, and Austria flinched before the task of undert crush that opposition.

EUROPE'S FOOD SUPPLY IN WAR TIME

ENGLAND'S SUPPLY DEPENDS ENTIRELY UPON HER SUPREMACY AT SEA - MANY'S LARGE IMPORTATIONS OF WHEAT — FRANCE, RUSSIA, AN AUSTRIA-HUNGARY ESSENTIALLY SELF-SUPPORTING

BY

JAMES MIDDLETON

READERS of history are fond of detecting a resemblance between the present European situation and that which prevailed a century ago. Then the greatest European Powers were united in a struggle against one country — France; now they seem united against another common enemy, Germany. Now, as in 1814, all the forces of Europe are determined to humiliate one overweening personality. In one respect, however, and this is a fundamental one, the situation is entirely different. A hundred years ago practically every great European power was an economic entity. Each one could have built a Chinese Wall about itself and lived indefinitely. Each one, that is, raised on its own soil enough of the essential foodstuffs to support itself. Even England, in the Napoleonic wars, was largely an agricultural community. It raised both cereals and meat in sufficient quantities to stand an indefinite siege. Even as late as the Crimean War, in 1853, England could go cheerfully to war with no fear of national starvation.

If, as some one has said, an army travels upon its stomach, the same statement may be made of a nation itself at war. Clearly, any people that has its supply of food cut off would immediately have to submit to any humiliating terms proposed. Its position would be that of a huge beleaguered fortress. And th least one of the nations engaged in th struggle, England, that faces this cont and another, Germany, that certainly sons for apprehension. A remarkabl opment of the present international is the dependence of one nation upon o its food supply. There is no countr portance that does not import large of food from almost every other. Th States, huge as are its foodstuffs, adds of dollars' worth to its supply from othe Even China, content, as we have suppo its staple rice, purchases immense q of American canned goods, especially Looking over the statistics, one is force clude that there is no longer any such t national taste in foods; each nation is picking up all the good things of anoth extent to which almost the entire world upon one or two countries for its coffe — foods which, in the Middle Ages, w tically unknown in Europe — suffici lustrates the growth of this internatio

In the present conflict, however, the foods will cut no particular figure; t staples of life are the important consi in an international war. In this wheat, not cotton, promises to be king. then, is the situation of the several n

ect? How are they to feed not only armies in the field, but their own peo- nquestionably this is the first time in when war has presented precisely this to the peoples involved.

NATIONS THAT CAN SUPPORT THEMSELVES

are seven nations, at this writing, im- y involved. These are England, Ger- France, Russia, Belgium, Austria- , and Servia. We can immediately he situation by arranging these coun- wo classes: those that raise the essen- l materials in sufficient quantities to themselves, at least in time of peace, e that do not. This division, as ac- as can be determined from available , is as follows:

S SELF-TING	COUNTRIES NOT SELF-SUPPORTING
	England
	Belgium
ungary	

DOUBTFUL
Germany

se Russia, next to the United States, rgest wheat growing country in the Seven eights of all the peasants are the soil. Two thirds of all the lands with cereals. The nation raises not ugh to support its own enormous popu- ut exports large quantities. France, estigators are surprised to learn, ranks next to Russia and the United States wheat growing land. The thrifty armers, with their comparatively small raise more wheat than the Argentine, ndia, or Canada — all of them usually as huge granaries. They produce oo more bushels than the whole of nerica. France grows about 315,000,000 a year — almost half as much as does ed States in normal years; it imports ,000,000 bushels. Clearly, with strict enforced by war conditions, France y furnish its own wheat supply without n outside nations. Austria-Hungary ia are similarly situated. When we England, Germany, and Belgium, how- conditions are different. The United raises about 65,000,000 bushels of very year and imports 217,000,000. raises 14,000,000 bushels and imports o. The situation in Germany is not as this, but still, with importations shut e wheat situation might become em- g. The empire raises 149,000,000 year and imports 67,000,000. Clearly en wiping out of these importations, y might not produce an actual wheat would so considerably reduce the food s to amount to a distinct military tage. Germany's situation is considerably better than that of England, but inferior to that of France and Russia. Russia raises all of its wheat and more; France raises ninety per cent; Germany raises sixty per cent. On the other hand Great Britain and Belgium raise only about twenty per cent. each. On the theory that a nation that raises only sixty per cent. of its most important article of food can hardly be regarded as entirely self-supporting, Germany is included, in the classification given above, as in a more or less precarious position.

ENGLAND ENTIRELY DEPENDENT ON OUTSIDE SOURCES

From the standpoint of food supply in case of war, England, of course, presents the most interesting problem. There was a time when English statesmen worried little over this situation. The supremacy of England's sea power was regarded as a fixed, determined fact. The fleet was so immeasureably superior to other navies, and, indeed, to all of them combined, that England went on serenely developing a huge industrial state within, and depending upon other nations for its food. About fifteen years ago, however, Englishmen began to be nervous on this point; since then there have been periodical scares. The building of other formidable navies, especially that of Germany, began to cause general alarm. The last of these great searchings-of-heart was in 1903. Parliament then appointed a Royal Commission, of which the Prince of Wales, the present king, served as chairman, to investigate the question. This Commission collected a large array of facts, most of them alarming. It found that the precariousness of England's food supply was about as black as it had been described. England imports four fifths of all its food. Most of it comes from far distant countries — from North and South America, British India and Australia. It gets large quantities of butter, eggs, bacon, poultry, fruit, and potatoes, and other vegetables from France, Denmark, and the Baltic ports.

A certain amount of grain comes also from Russian-Baltic ports — and from the Black Sea region. For the larger staples, however, like wheat and meat, England has to go several thousand miles. It always has a comparatively small supply of food on hand. The swiftness of the modern steam vessel has made any large storage system unnecessary. Of butter it has normally only a seven or ten days' supply; of cheese only a month's supply; of eggs — England consumes 80,000,000 a week — only four or five weeks' supply. Its resources in wheat vary through the year; it has the highest supply in September, when it has enough for seventeen weeks, and the lowest in August, when it has enough for only six and one half weeks. England has a larger supply, however, than that stored up in its own larder. There is always an immense amount floating in ships — in thousands of English vessels, crowding the trade routes in all parts of the world. This

usually amounts to from three to seven weeks' supply. An interesting fact herein disclosed is that England's lowest stock on hand is reached in August — the very month in which she now goes to war. The whole food situation was well summed up in a formal declaration made to the Royal Commission by the most influential members of the wheat trade in London: "We, the undersigned, concur in the opinion that, if Great Britain should become involved in a European war, the country must be prepared to see bread at practically famine prices."

THE UNITED STATES SENDS LITTLE WHEAT TO ENGLAND

From 1870 until 1902, the United States did the larger part in feeding the British Isles. We not only had a large surplus of food stuffs, but the shortness of the voyage gave us an advantage over competitors. The enormous increase in our population forces us now to keep the larger part of our food, especially wheat, to feed our own stomachs. Although we are still the world's largest wheat producer, we send comparatively little of it abroad. England now draws its supply from Russia, Canada, the Argentine, British India, and Australia. The figures for 1911 are as follows:

PRESENT SOURCE OF ENGLAND'S WHEAT SUPPLY
(Hundredweights)

British India	20,161,518
Russia	18,106,100
Argentine	14,748,600
Canada	14,373,700
Australia	13,910,720
United States	12,939,229

England likewise imports two thirds of all its meat. It gets a small supply fresh killed from Holland and Denmark and a far greater amount in the shape of live animals from Canada and the United States. Its frozen carcasses come mainly from the Argentine and Australia. It usually has about one month's supply of all kinds of meat on hand.

SEA POWER ENGLAND'S ONE SALVATION

The practical question that has agitated England for many years has been: How are we to protect our food supply in case of war? Some authorities have advocated the building of huge granaries that would hold a large reserve supply. There are many practical objections to this proposition and it has never enlisted popular approval. Most Englishmen who have had the courage to face the situation have reached the same conclusion: that there is only one way of protecting the food supply and that is the navy. Even with England in command of the sea, there would be certain difficulties in feeding the nation; without this control, most people agree that the game would be fairly up. With a hostile navy blockading the important ports and so shutting out the foodships, England could undoubtedly be starved into submission in a few weel Royal Commission, which investiga subject, came to this conclusion. T mous navy which England maintain North Sea, therefore, has ample just

England will probably control the s present conflict; there are other proble ever, that she will have to solve. Ma are drawn from the mercantile marin use of the admiralty; inasmuch as t thousands of English ships, howev probably will not seriously interfere wi portation facilities. Nor does there see danger that the German and Austria will prey to any extent upon English s The days of the privateer are over; th ship, involving the difficulty of coal practically made impossible this old f roving of the sea. Nor is Germany l send any of her rapid cruisers to pr English trade; she will weaken her f ready considerably overmatched, by d Neutrals ought not to suffer, especiall Declaration of London has settled the f food, unless intended for military pur such as the feeding of armies and fort is not contraband. Some English sl questionably will be captured; but ther few in comparison with the depredati seem likely to be made on German co One consideration that especially England's food supply is the fact th not drawn from any one country, but f — the United States, Canada, Ar Russia, and British India. It comes ov great trade routes — the North Atlan South Atlantic, and the Mediterranea first has its most important port in Ne the second in Buenos Ayres, while tl leads to Bombay and Australian depots. seems no likelihood that Germany can these three transportation routes, or a of them. When the Royal Commissio its investigation, the Mediterranean ro the one that gave the greatest anxiet *entente cordiale* was then not a factor i pean politics; and war with France was impossibility. The Republic's naval s in the Mediterranean, in that event, wou endangered such of England's food su came by way of Suez. The present E alignment makes this same Medite route perhaps better protected than e the other two routes.

UNITED STATES AS A FOOD SUPPLY I TIME

With an English fleet victorious on t therefore, the English food supply seems antly safeguarded. In all probability, war lasts any time, the United Stat largely increase its exports. Our natur tion should make us the largest storeh the Englishman's food. The route to th Plata is 6,500 miles; that to Bombay i miles by the Suez Canal and 10,500

New Zealand and Australia are 10,000 away; the distance to American ports, er, is only 3,500 miles. Moreover the oming this short distance can carry more hose sailing on the other routes. The the voyage, the more coal the ship has ry, and, proportionately, the smaller is go. Inasmuch as England will naturally from the places whence the food will quickest and in the largest amount, it naturally draw first of all upon the re- of the United States. It will do this larly this year, as our grain crop is un- large and that of the other agricultural unusually small.

n we look to Germany, however, the op- ities for food importations do not seem so ing. In all probability German ships t be able to use the North Sea. With e French and the British fleets in the Med- ean, there is apparently no hope of ob- supplies from that source. It is even le that the larger part of the mercantile which Germany has been building up at normous cost will be swept from the sea. currying to friendly ports that marked st days of war will probably develop ttle less than a stampede. Moreover, he blockading of the English coast is a t problem, owing to its character and the blockading of the German North aline presents comparatively few prob- a victorious fleet. Germany will find mbarrassment also in the fact that she e to war with the country that furnishes ger part of her additional food. This is She takes from the Czar's empire uantities of wheat, barley, oats, and corn year. In fact she imports foodstuffs bout the same countries as England her- The following table, showing her impor- of wheat, illustrates this point:

GERMANY'S IMPORTATIONS OF WHEAT
(Tons) 1912

. . . . .	558,422
ne	546,439
. . . . .	269,530
States	446,512
a	322,500

Germans, therefore, use the same trade as the English ships. With the English rench commanding the sea, however, rmans can not draw much wheat from ources.

RMANY'S LARGE SUPPLIES OF MEAT

cutting off of these foreign supplies not affect Germany to the same extent imilar scarcity would embarrass England. British Isles such a calamity would mean ion; in Germany it would mean a severe of food. For Germany still produces ger part of what it eats. Although in forty years the empire, like England, has a great industrial state, with the conse- quent shifting of the population from town to city, the imperial policy has still promoted agri- culture. Agrarianism has long been a politi- cal issue. As part of its monarchical system, the ruling forces have used the powers of govern- ment to sustain the landlord class. The junker aristocracy has been the mainstay of the throne and the prevailing social system. The government has, therefore, protected its inter- ests by placing high tariff duties upon agri- cultural and meat products. As far as food is concerned the empire has been in about the same position as England before the passage of the corn laws; it does not raise food enough for its own purposes, and has difficulties in im- porting it. Especial restrictions have been placed upon the importation of meats. As a result, large supplies are grown in the empire itself. Germany produces almost one third as many cattle as does the United States — about 20,000,000 to our 71,000,000 — and stands second to the United States in the growth of hogs. In times of peace this protective policy has great disadvantages. As one result meat famines have become almost chronic. In re- cent years to supply the need, the municipalities have themselves erected slaughter houses and swineries. The increased cost of living has been an even more acute problem in Germany than here, and has figured largely in politics. All popular appeals for the removal of restrictions, however, have failed. And in times like these the policy has certain compensations. For it has furnished Germany a large supply of meat; in all likelihood it can worry along for an indefi- nite time without any imports.

Their embarrassment will come only from the destruction to crops that is incident to war, and to the removal of large masses of cultivators to face the cannon. No one can estimate, of course, to what extent these circumstances will affect the food situation.

The other three great countries, as already said — France, Austria-Hungary, and Russia — are practically self-supporting, so that their provisioning will involve no particular problem.

A crisis of the most serious character for the German farmer arose in the "four years of gloom" from 1896 to 1900. The competition of agricultural exporting countries, such as the United States, Argentina, and Uruguay caused a drop of more than 25 per cent. in prices. Mortgages increased, market value of land decreased, and in those four years alone the indebtedness of the farms increased by hundreds of millions of dollars.

Irretrievable ruin faced the German agri- culturists and immediate steps were taken to save the situation. The protectionist policy was made more rigid, railroad rates were lowered on behalf of the home producer to enable him to meet foreign competition more successfully, government education of ad- vanced agricultural methods was widely used, and a widespread system of credit in the agri- cultural department was organized.

THE RED CROSS OF THE WARR NATIONS

THE EFFICIENT RED CROSS OF RUSSIA — HOW IT WORKS IN FRANCE AND GERMANY

BY

ARNO DOSCH

THE women of many nations wearing the Red Cross are following the armies on to the battlefields. The work of the Red Cross is more rapid and effective than ever before. Hospital corps have trailed ammunition wagons and the wounded have often been moved to field hospitals before the first numbness of injury has given way to pain. This is modern warfare, as unbelievably humanitarian as it is barbarous.

Every European nation in the war has an efficient Red Cross of its own. In every one the Red Cross has a somewhat different standing. In Russia it stands higher than anywhere else. it is given great freedom and deserves it. At the same time it is more of a state affair than anywhere in Europe. It is supported by special taxes and is given unusual privileges at all times. The nurses of the Red Cross form a sisterhood. They are, in a measure, consecrated to the cause. The Russians have come to a better understanding of the usefulness of women nurses on the battlefield than have the people of any other nation.

At the outbreak of the Spanish War, the Russian Red Cross, which was at the time almost the only effectively organized Red Cross in the world, offered its services to both the United States and Spain. The United States declined, but Spain accepted. The United States might have done better to accept. Lack of a modern Red Cross was responsible for much suffering and loss of life in Cuba and Porto Rico. Tampa and Chickamauga might have had other stories to tell if the Russian Red Cross had been there to help. Now, of course, such conditions would be impossible. Our own Red Cross has learned how to handle the situation.

The Russians divide the field work of the Red Cross into five divisions: Handling supply depots; taking the injured back from the firing line, which means an emergency transportation system; assistance to the regular surgeons; direct relief on the battlefield; and caring for the feeding stations in the rear of the army. In war time the Russian Red Cross does more than the Red Cross of any other nation. Russia began developing the Red Cross in the Crimean War. When the Russian-Japanese War came on, the "white trains" given by wealthy nobles were par conspicuous. Altogether, the Red Cr to the front 3,000 carloads of mate food. The nurses were as efficient at t as the organization was in forwarding s At the fall of Port Arthur all stray ends ugly business were left to them. T Cross really did the evacuating. Whe den was evacuated there were many h of wounded whom it was impossible t Surgeons and nurses remained behin them and were given every courtesy conquering Japanese.

The Japanese themselves developed t Cross into the best possible field force in short time. Taking advantage of the ism, the women of all Japan were org The nurses and cooks formed one bo went to the front. Another body de lunch and refreshment rooms, and everywhere made bandages and helped field outfits. Now the Red Cross o hospitals throughout Japan, and one every forty persons in the empire bel the Red Cross organization.

In contrast to Russia's attitude is Ger limitation on all volunteer nursing. It trary to the German character to leave n of that kind to any chance. It is all worl methodically by the army medical corp the volunteers are held in check. Th used to help expand the regular forces, bu have no such independence of action a enjoy in Russia.

The French Red Cross has more liberties of the Russian. It is a quest national temperament. The French in nursing make up for lack of drill by t thusiasm with which they enter int combat. The volunteer French Red C composed, as in the United States, of th trained nurses in France. They ha experience in that particular service, bu understand nursing and sanitation. Th organized according to army divisions : better work perhaps because of their fr from red tape.

The Italian Red Cross is admittedl best organized for war, and here ag effectiveness is due to the lack of res The Austrian Red Cross has also been gi

account of itself for several years. Its zation is much like the Italian.

ost every nation was represented in the Cross in the Balkans, but the absence of Cross organizations in the Balkan states elves brought about in the first battles ng to which only the battlefields of the e Ages could offer comparison. Stories ame to the outside world from the few present roused the world and made the battles less awful. The graphic account nty-four hours at an operating table in ar of the Servian army, as told by the ess Maggiolini, did more for humanitar- in the Balkan wars than any other single ice.

Red Cross will probably be even more cuous in this war than in any previous Where lines are so tightly drawn and the g is frequently in a comparatively small he crossing of lines and the invasion by al corps of hostile territory bring up fine . It is a question how far the Red may go toward relieving the suffering e noncombatants without interfering he brutal purpose of war. There will be s of violation of the Red Cross, and the to which the Red Cross will be permitted will depend largely upon the humanitari- of the individual commanders. Despite any other activities the Red Cross is associated with the battlefield. There certain coveted rights in the name of ity, and it never yields any. If any- it is inclined to stretch them. At its tions war is always foremost, as it has nnial discussion as to its rights. Part purpose of war is to lay waste the invaded y and make its inhabitants suffer want. Red Cross stands for the alleviation of ng wherever found. These two cross es constantly clash, and the needs of nerally win. The Red Cross can go no r than it is permitted. It can be only d before it is interfered with.

des trying to define and enlarge its rights battlefields, the Red Cross conventions out new inventions for giving better . The Dowager Empress of Russia buted a fund of about $50,000 to stimu- e inventive ability. The first prize is 00 rubles, about $3,000, the second of ubles, and the third 1,000 rubles. These known as the Marie Feodorovna prizes, een won for the invention of a consider- st of handy contrivances — from stretch- ich can be changed to meet almost any ion, to handy kits for the uses of nurses . They have been awarded for practical , and the work of the Red Cross in the t war, as well as the work of the medical will be greatly facilitated by the fact ose prizes were given.

n the Geneva Convention was held in he world had been sickened with the f blood. The horrors of war were upper- most in the minds of people. It was possible to gain a wide appeal for the movement. But it was found out before long that work of the Red Cross was not always to the best interests of a conquering army, and this, added to the poor handling of the Red Cross, caused a reaction. In England's various campaigns, particularly in Egypt, the Red Cross met almost violent opposition from the English army officers. It was not until army officers discovered in the Spanish War that the Red Cross could be effectively used for repairing broken men that it began to gain in standing.

From the devoted labors of scattered volunteer nurses, typified and ennobled in Clara Barton and Florence Nightingale, the immediate care of the wounded has become a part of the modern fighting machine. It was found in the last war in the Balkans that it paid as a mere matter of repairing the injured men. Unless a man was mortally wounded or required a capital operation, he was usually back in the ranks fighting in two weeks. The Red Cross had become a repair shop.

Efficiency has come in the Red Cross, as a matter of fact, only with the passing of the compassionate women like Clara Barton. She was frequently alone on battlefields in the Civil War where hundreds lay wounded. She was nothing short of the "angel of the battlefield." The same was true of Florence Nightingale in the Crimea. Those two women made names for themselves that will outlast war. But the movement languished. The American Association of the Red Cross, of which Clara Barton was president for twenty-two years, consisted chiefly of a dozen women. The American National Red Cross of to-day, incorporated in 1905, after Clara Barton's death, has 3,500 trained nurses, all with three years' hospital training, ready to mobilize as rapidly as the army.

If the United States were to go to war the volunteer organization of the Red Cross would in fact be mobilized with the army. This was made possible by an Act of Congress two years ago authorizing the spending of the money. Much the same thing happened when the European armies mobilized. Not only the highly developed hospital corps were immediately behind the artillery, but the Red Cross came in behind as medical reserve fully as well equipped. In most of the armies, in fact, every soldier has had an emergency kit, the existence of which was due to the Red Cross movement.

The Red Cross has become what it is in this country to-day largely on account of the unnecessary sickness at Chickamauga during the Spanish War. The modern sanitation campaign carried on since by army surgeons, for that matter, also had its rise in the Spanish War. The cleaning up of Havana led to the sanitation of the Canal Zone. The English learned their lesson in South Africa, although the peculiar unhealthfulness of much of India had

already forced some measures of care. Both the Japanese and Russian armies were followed in the Russian-Japanese War by very good Red Cross corps. They worked together sometimes, in sorting the wounded, and, through the French Red Cross, which was also very active in Manchuria, the names of the dead were listed to be sent back to friends and families. The French Red Cross served as a news agency.

It has all been within fifteen years that the Red Cross has come to play the part it now plays in warfare. It was thirty-five years, following the organization of the international Red Cross at Geneva, in 1864, before it became what it was planned to be. This was almost simultaneous with the discovery in poverty of the man who was responsible for it. Jean Henri Dunant, the Swiss author, the founder of the Red Cross, who stirred Europe with the horrors of war and brought about the international convention at Geneva, was found in an old man's home in Switzerland, in 1897. It was at this time that the Spanish War showed how the development of the Red Cross had been neglected and Dunant began to assume the position in the world he deserved. Four years later, the Nobel Peace prize, given for the first time, went to him and to Frederick Passy. His share of that was 104,000 francs, about $20,000, which, with a small pension from the Dowager Empress of Russia, served him until he died in 1910.

He, with his horrible description of Solferino, and Florence Nightingale and Clara Barton, with their vivid experiences, launched the international Red Cross with much more to go on than it took advantage of for many years. Clara Barton even foreshadowed the industrial activities of the American Red Cross by helping organize workshops in Paris and Strassburg to save the women left destitute by the Franco-Prussian War.

The report of the Sanitary Commission of the Civil War, which raised by voluntary subscription $500,000, was also largely responsible for the shaping of the original Red Cross. The Sanitary Commission used a Greek cross surrounded by an oval band. But the red cross has long ago become standard throughout the world except where the red crescent is used.

Attempts have been made to protect the insignia from indiscriminate use. It is frequently abused in war for scouting purposes and noncombatants adopt it as a shield. There is nothing to prevent it. Even at catastrophes where the red cross serves merely as a convenience in facilitating progress it is usually abused. At the San Francisco fire after three days every automobile displayed the red cross and it came to mean nothing at all. As a result, those who were entitled to use the red cross changed suddenly to the use of a piece of red flannel, and the red cross insignia was not honored.

The slowness of the Red Cross movement to get under way, in fact, was due to the of it. In the Franco-Prussian war it f disrepute. Ignorance of the rules lai by the Geneva Convention was largely sible. Though it had been carefully l just how far the Red Cross could go being looked upon as succoring the ene volunteer field workers paid no att There were also jealousies between the Red Cross organizations. The Red Cr such a bad name among military men one war that volunteer nursing was disc up to the time of the Spanish War.

There is hardly any chance that there any accidental complications of this kin present war. The Red Cross may be ately used to get information or to a supplies, but the volunteer organizati so completely in hand now that they ac the orders of the military surgeons. T Cross is to the armies of the world no the volunteers are to the regular arm is officered by army surgeons and bec part of the army sanitary body.

A dispatch dated Washington, Augu said: "Committees of the American N Red Cross to-day were at work on p rush aid to the sick and wounded in th pean war. Surgeon-General William C sted and a party went in search of a carry doctors, nurses and hospital s across the Atlantic, and others were re and disbursing funds for supplies.

"The ship will be painted white wit cross on the funnels, and will sail un Red Cross flag. She will also be un treaties of Geneva and The Hague, and able to enter any harbor."

The American Red Cross has played a part in alleviating the suffering cau every kind of catastrophe, except war, the last ten years. Even in war it has c part, especially in Turkey, feeding and c the noncombatants when the Bulgarian their spectacular dash at Constant From the plague in Manchuria to the T Building fire in New York, the Americ Cross met the emergency. But when i to general European warfare, every arm worked out a complete Red Cross sys

The American Red Cross did not directly into the field in Europe becaus was no place for it. It would not fit could be useful only as an organization h and forwarding supplies. But once the are disorganized or the initial organiz broken up by defeat, the American Re or any body of foreign nurses, could do work as the nurses of the country.

At present, however, the Red Cross s of the warring nations, with the same sy and heroism that prompted Florence N gale and Clara Barton, and with organization and effectiveness, are car the sick and wounded on the stricke of Europe.

THE EFFECT OF THE WAR ON THE UNITED STATES

RA OF HIGH PRICES — A RISING COST OF LIVING — INTERRUPTED TRADE AND IMMIGRATION — BUT ALSO AN OPPORTUNITY TO TAKE THE COMMERCIAL AND FINANCIAL LEADERSHIP OF THE WORLD

BY

CHARLES FREDERICK CARTER

(E the rain, the penalties of a great war fall alike on the just and on the unjust. Although the United States is innocent of blame for the present conflict (with all the parties to which we were, and still con- o be, on terms of impartial friendship) the ı has already paid a heavy toll because of ır, and it will be obliged to pay an increas- ıeavy one as time goes on.

t came the great demand for gold for and an endeavor by European investors lize on American securities at any price, ɔmpelled the shutting down of the stock ıges. Financial and commercial opera- ın a large scale were reduced to the lowest pending the taking of necessary precau- against total demoralization. Business /here felt the shock keenly.

:ign trade was practically brought to a till. The sea-borne traffic of the world is l in a fleet of approximately 31,000 vessels ; an aggregate capacity of 47,000,000 tons, in round numbers, of which Great ı owns 40 per cent., Germany 11 per cent., : 5 per cent., and the rest of the nations enough to bring the aggregate to nearly irds of the grand total. Barely 10 per of our foreign commerce is carried in :an ships, and on the north Atlantic we ɔut a single line of four venerable vessels. hostile warships scouring the seas, the ; of commercial craft naturally prefer to heir ships in some safe port. This ap- ıot merely to the north Atlantic trade, the traffic with the West Indies, South :a, Africa, the Far East, and Australasia. ɔne side or the other gains the mastery sea, or until we can provide ourselves, rchase, with a merchant marine, under :w law, the embargo on commerce must ue. Some of the finest vessels in the Atlantic trade were built with the aid of ımental subsidies on condition that they be converted to military use in case of These will not be available for commerce case until the war is ended. The situa- ıay at any time be further complicated ɔckades, so that the acquisition of vessels own would not help us out altogether.

The embargo on shipping and the dislocation of the exchange market caused congestion of wheat at the ports, which reacted upon the railroads and thence to the farmers in the West. The stevedores and longshoremen were the first Americans to suffer from the consequences of the war, but in a very few days the effects had spread over all the country.

A still more serious aspect of the situation is that the nations at war are our best customers. Of our total exports, amounting in 1913 to $2,465,884,149, these warring nations took $1,190,463,425, sending us in return goods valued at $709,498,119. In other words, 44 per cent. of all our foreign trade is with those nations which are now at war. Practically the entire able-bodied male population in all these countries has been withdrawn from industrial pursuits, leaving only women, children, and old men to do whatever useful work is done. The women of Europe are accustomed to doing much of the drudgery, because even in time of peace all able-bodied young men are compelled to give at least three of the best years of their life to the army; but there is a limit to what the women can do. The purchasing power of these nations has already been reduced to the lowest possible figure, and it will continue at the minimum for a long period after peace has been declared. Our trade must decline because there will be fewer people with whom to trade. Some industries will doubtless be seriously affected, others to a lesser degree, but thousands will be thrown out of work, while the cost of living increases, and the Government, deprived of customs duties, may be obliged to levy a war tax, which will make things still more uncomfortable for the American citizen who has no part in the quarrel.

Whatever the seventeen million men who are trying to kill each other, and their families may do without, at least they must have food. It happens that although the wheat crop of the rest of the world is short about 438,000,000 bushels, or 14 per cent., that of the United States shows an increase of 148,000,000 bushels. The corn crop is 187,000,000 bushels larger than a year ago, and the oat crop is 31,000,000 bushels larger. The total increase in the three

great cereals over last year is 366,000,000 bushels. This surplus we shall be able to dispose of at prices that have already advanced materially and that are pretty certain to go still higher. This is all very well for those who have grain to sell; but, unfortunately, we cannot have one price for foreign customers and another for the home market. There are more consumers than producers of cereals, so the great majority will find nothing agreeable in the increased cost of grain and flour.

There is another consideration. Though our exports of foodstuffs for the year ending June 30, 1914, totalled $430,296,666, we imported $475,070,689 worth. In other words, we are unable to feed ourselves, but must go out into the world's markets and make up the shortage in provisions at the same increased prices that others pay.

The tariff was taken off sugar for the benefit of the consumer. But an important part of the world's supply of sugar comes from beets grown in the countries now at war. It is uncertain whether the present crop can be harvested or not. On the prospect of a shortage sugar advanced a cent a pound to the consumer before the war was a week old. Meat, butter, eggs, cheese, and other articles of food also promptly started to climb. Steel advanced a dollar a ton. Many chemicals, drugs, and innumerable other manufactured articles come almost wholly from the war zone. The opening of hostilities promptly cut off the supply. As it is extremely uncertain when this source of supply will again be available, or when, or to what extent, American manufacturers will be in a position to supply the demand, the consumer may confidently count on paying fancy prices for all these articles or going without them.

Germany supplied an important part of the fertilizers used on American farms. If this supply, now entirely cut off, is not forthcoming when needed, the result may be a decreased production next year which will offset any benefit the farmers affected may gain through increased prices for their crops.

In short, there is no lack of ways in which to collect from America the penalty for Europe's crime. The penalty has been passed along to the average man everywhere in the form of a prompt increase in the cost of living, with the comforting assurance that the increase is likely to go on indefinitely. In all probability there will be a temporary slowing up in all lines, which will make dollars scarcer for the average man at the same time that the purchasing power of the dollar is shrinking.

Another very serious result of the war will be to shut off the supply of foreign capital. America has always been a heavy borrower, and could continue to borrow with profit to herself. The railroads alone need billions in the next few years if they are to be developed on a scale that will allow the country to grow. But after such a titanic struggle as is now going on Europe will be hopelessly bankrupt. No matter who wins the nominal victory all the nations involved will be the real losers, and their neighbors will suffer to a lesser degree. Countless billions in capital and property will be destroyed utterly, and the best lives of the countries will be wiped out by scores of thousands. It is, obviously impossible to make any sort of guess at the number of lives to be lost, but perhaps past experience may serve as a guide in appreciating the awful cost in blood. The Japanese death rate in the Russian-Japanese war on the battlefield, from wounds and from disease, was 70 per thousand per year. Assuming that the nominal strength of all the nations, amounting to 17,000,000 men, is actually called out, and that the war lasts one year, the death roll would total, at the Japanese rate, 1,343,000. Whatever the number of lives cut off before their time may be, the productive power and purchasing capacity of the nations will be reduced by just that much. To this must be added the productive capacity of other scores of thousands doomed to drag out the rest of their lives as hopeless cripples or invalids, unable to take care of themselves, to say nothing of caring for others. Finally, the birth rate will be reduced by all these horrors, so that altogether the warring nations will be set back many years in the march of progress. Taking all these things into consideration, it must be conceded that our trade with Europe is not likely to be what it has been for some time to come.

All this is but the climax to a ruinous drain that had continued until the world was suffering from a famine of capital. The belligerents had been spending upward of a billion dollars a year in preparation for war, which was the best possible way to make war inevitable. This vast expenditure served no useful purpose, but, together with the earning capacity of four million men withdrawn from useful labor to serve in the armies, was as utterly lost as if it had been sunk in the depths of the ocean. Besides this, financiers had just completed the task of raising considerably more than a billion dollars to foot the bill for the wars in the Balkans, added to which England was still paying interest on a debt of more than a billion dollars incurred in the Boer War. The economic convalescence of the nations must be slow, because they were financially anemic before the war began.

Still there is a streak of silver, even in this sombre cloud. The warring millions will have to be fed and clothed somehow. At whatever sacrifice, they will have to raise money with which to buy the necessaries of life, and to a large extent they will have to buy from us. They must find some means of getting provisions across the sea, if they have to send a whole fleet of battleships to convoy each freighter. Also, the rest of the world must turn to us now for the manufactured goods formerly purchased from the warring nations. A little more than half our foreign trade last year was with nations not directly concerned in the war. There is now a chance for us to obtain the bulk of the

trade Europe formerly enjoyed with these nations. The prompt action of New York bankers in establishing a sort of international clearing house to offset the collapse of all ordinary foreign exchange indicates a disposition to take advantage of the opportunity.

Indeed, some of the ablest financiers now assert that the present situation is this Nation's great opportunity if we but have the wisdom to grasp it. We can become the leader of the world in industry, commerce, and finance if we will, so these far-seeing men aver. In order to do this we must economize. The rich have been economizing in recent years, but the farmer and the workingman have been growing ever more profligate. As the second step toward world leadership they say we must enact the trust bills over which Congress has been deliberating all summer. Everybody knows there are underlying evils that need to be cured, and which these bills are intended to cure. They may not be perfect measures, but at least they make a beginning and they can be improved later as experience may suggest.

One effect of the present situation will be to compel us to finance our own ventures, since we can get no capital from Europe. The bankers say we can do it.

Another effect of the war will be to cut off immigration. Naturally, no man capable of bearing arms will be allowed to leave any of the nations involved while hostilities last. Afterward they will be even more urgently needed than they are now. This will not be a serious drawback, because there is labor enough here now to meet the demand, though the restriction of cheap labor will check the wasteful development of natural resources and compel the conservation of which so much has been said, but toward which so little has been done.

Another effect will be to compel the United States to provide its own merchant marine so that we may no longer be dependent on foreign ship owners to get our products to market. The Administration has already perceived this, and has begun the task of modernizing our archaic shipping laws.

Another effect which will inure to our benefit is that we will be compelled to manufacture our own cotton instead of sending so large a portion of it abroad to be manufactured.

CARING FOR THE SOLDIER'S HEALTH

REDUCING THE LOSS FROM SICKNESS AND WOUNDS — BUSINESSLIKE HUMANITY — BURYING 140 MEN AN HOUR

SOLDIERS who escape death on the battlefield in the great conflict now going on will have a far better chance of returning home alive than any soldiers ever had before. It must be remembered that in all previous wars the real enemy was not the one with gun in hand under the opposing flag, but disease, which mowed down troops on both sides impartially. It has taken the world a long time to grasp so obvious a fact, but the lesson has been thoroughly learned at last, and it has been applied in all civilized armies.

Sick soldiers of an earlier day received no attention whatever. If the wounded received any care it was from a comrade or from the women who followed in the wake of the army. Then the barber became the army surgeon, when there was any, to give way later to monks. Napoleon paid little or no attention to sick and wounded. In the Peninsular campaign about 60,000 French soldiers were killed in battle in Spain, and about 400,000 died of disease. In the Russian campaign of 1812, of 500,000 who crossed the Dneiper in June scarcely 20,000 returned in December. Bullets killed some, to be sure; the deadly cold claimed others; but the great majority perished of disease. The 1813 campaign after Leipzig was no less disastrous. Of an army of 100,000 that left Leipzig in October only a few fragmentary battalions followed the eagles across the Rhine in November. The total ruin of this army was due to sanitary neglect. Soldiers died of disease by thousands, scattered among the villages along the route from Germany, leaving pestilence in their wake.

In the Crimean campaign 230 out of each 1,000 British soldiers died annually of typhoid fever, dysentery, and other infectious diseases.

In the Franco-Prussian War in 1870-71, the annual death rate from disease among French troops was 140.8 per thousand; among the Germans, 24.5.

In the Boer War, lasting two years and eight months, 5,774 British soldiers, in a force having an average strength of 208,326, were killed in battle, and 2,108 died of wounds, a total of 7,882, or about 14 per thousand a year. Disease claimed 14,210, or 25.58 per thousand a year, which was almost double the number slain by Boer bullets. The total death rate was 39 per thousand a year, and the total wastage, including invalided, missing, and prisoners, amounted to 40 per cent. of the total strength of the army annually. Nearly 3 per cent. of the total strength was constantly sick.

In the Russian-Japanese War, which lasted

twenty months, the number of Japanese alone, in killed and death from wounds, averaged 54 per thousand a year. Disease claimed 27,142, or 25 per thousand a year, a showing no better than that made by the Germans in the Franco-Prussian war.

The foregoing figures serve to give an idea of the magnitude, as well as of the character, of the task confronting the medical staff of the modern army. All the world seems to have realized after the Russian-Japanese War the absolute necessity of caring for the health of troops in the field. Soldiers are no longer regarded merely as "food for cannon," but as valuable property belonging to the State, which it is good business policy to care for with at least as much pains as are bestowed on other war material.

In the last ten years the medical staff of every army has been completely reorganized and brought up to date. In every language elaborate treatises have been written on the proper methods for preserving the health of troops and for taking care of the wounded with a view to returning them to the ranks as soon as possible. Text books containing "problems" are prepared for the young military surgeon who aspires to promotion, so that he may become skilled in the art of providing for large numbers of wounded under various difficult conditions, on paper at least. The most minute studies have been made of every detail in the daily life of the soldier in barracks, on the march, in battle, and after he has been wounded.

The first department of the army with which the prospective soldier comes in contact is the medical staff, which examines all applicants for enlistment and decides whether they shall be accepted or rejected. In England, the only country now at war in which military service is voluntary, the physical examination is rigid and the percentage of rejections is high. Even in those countries in which military service is compulsory and universal the unfit are excluded from the ranks. The volunteer, or the unwilling youth who reports for his compulsory tour of military duty, who is accepted as a recruit is never thereafter free from the watchful care of the medical department until he is discharged or dies and is buried under the direction of that department.

The medical staff prescribes, or at least modifies, the exercises and setting-up drill for the raw recruit to make sure that he is not overworked; for in Europe the young recruit is likely to have been underfed. The medical department makes a point of feeding up these weaklings while it begins their physical education. Hygiene is now all-important in the military world, for the fact is recognized that it is much cheaper to keep the soldier well than to cure him after he becomes ill. Besides, the commander wants a fighting force, not a hospital population.

Thanks to vaccination, typhoid fever is becoming a negligible element in the military organization. The United States army leads the world in the extent to which this preventive is used, and France is foremost in this regard among European nations. Owing to the great numbers in continental armies, typhoid vaccination is proportionately less used than in this country; but American military surgeons predict that if the war is prolonged all the troops will be inoculated against their deadliest foe. Vaccination against smallpox is practically universal. Besides these there are numerous infectious diseases for which vaccine therapy has, as yet, provided no remedy; and these cause the army medical officer no end of trouble. Soldiers seem prone to mumps, measles, and kindred ailments, which run through a camp or a garrison as through a boarding school.

The medical staff is consulted about the soldier's clothing, and especially about his shoes; for if these are not properly made he becomes footsore on the march. England, like the United States, provides socks for her soldiers; but troops on the Continent, if they want such luxuries, must buy them themselves. Germany, by unanimous consent, is conceded to provide worse boots for her troops than any other nation, though improved footwear has recently been adopted.

Extraordinary care has been bestowed upon the soldier's ration. Since the work men and steam engines can do depends upon the amount and quality of fuel fed to them, the continental soldier is nourished as carefully as a locomotive is stoked by an expert fireman. The army medical staff of each nation has made exhaustive experimental studies in order to arrive at the proper quantity of food required by the average individual to do the average day's work for a soldier. This amount is measured in calories, which is the standard heat unit used by physicists, a calorie being the amount of heat required to raise the temperature of a kilogram of water from zero to one degree Centigrade.

The Russian soldier either requires more food than other men, or else he is blessed with a more liberal government, for his daily field ration amounts to 4,929 calories. The French soldier is the next best fed, his daily field service ration providing him 3,340 calories. England ranks third with a field ration of 3,292 calories, and the Dual Alliance is at the bottom of the list, the German ration being 3,147 calories, and the Austrian only 2,620 calories, or but little more than half the Russian ration. From the military surgeon's point of view this inferiority in rations bodes no good to the Dual Alliance.

The British ration is not much different from that of the American soldier, consisting of a pound of bread and three quarters of a pound of fresh meat with bone, or seventeen ounces of preserved meat when in camp or abroad. In addition to these staples, he is allowed a messing allowance of twelve cents a day with which to purchase vegetables and the like. For service in the field, the French and Germans use to

nt tinned meats put up with vegetables ›mmé. In some of their African cam- ıe Germans found that contractors, iew to economy, had filled the tins ith water; so now the Government s own tinned meats for army use.

may contain proteins and carbo- in the proper proportions and be in lition, yet so unappetizing as to cause or even loathing; so the army medical st see that the troops have the proper ts to season their food and that it is ed. For this purpose they visit the eal time. Only last year the sanitary e French Army reported that the food lier had been most carefully considered ated with proper regard to obtaining st efficiency from the individual fed tific diet. Since 1905, when the doc- nmended a better cooked and more ɛt, a system of instruction in cookery introduced in the army with gratifying One of the results is a death rate in ace of only 3.75 per thousand as com- h a fraction more than 20 for the d 8 per thousand for the civilian popu- ween the ages of 20 and 22.

›tor omnibuses, familiar to visitors to now being used, with wire screens re- ıe windows, to convey fresh meat to h troops in the field. One of these ın haul a load of two and a half tons beef imported from Argentina, or ɛd beef from the herd, about forty ; from the front.

ı down his carefully measured dose of nd carbo-hydrates the English soldier twenty-two hundredths of an ounce ly. On the Continent the average efers coffee. The French soldier is with a coffee mill; but the Germans, some of their African campaigns, had butts of their rifles, which proved to poor substitute for a coffee mill.

he military surgeon's point of view, ·en more important to the soldier than e classic example illustrating the con- of a hard march without water is lescription of the march after Sauro- "many fell and died convulsed and ıt the mouth, while others whose l strength had never before been ınt on their muskets and muttered in ıes that they yielded for the first

axiom among mountain climbers that you drink the farther you go." The not allowed to drink whenever he On the contrary the medical staff in- water discipline is as essential as firing

They say a man is not allowed to single round of ammunition without and that he should not be allowed a ater without specific permission while rch. Indeed, in some native regiments he water bottle is carried so its owner cannot reach it while marching. He can get a drink only when halted for that purpose.

The time for drinking and the quantity to be allowed have been carefully calculated on a scientific basis. It has been found that the evaporation of two grams of water abstracts one calorie from the body and that the average expenditure of energy per man in marching is 90 calories per mile, which is equivalent to the evaporation of 180 grams of water. In six miles the evaporation amounts to one litre, or 1¾ pints, or, say, one-fortieth of the water in the body, which is about as much as should be lost without replacing, if full vigor is to be maintained. But as it takes a march of about three fourths of a mile to raise the temperature to the evaporating point, the military surgeon calculates that the men should be halted after marching the first seven miles, when they should be allowed the contents of their water bottles, which hold one litre. After that they should be allowed one litre every six miles. In the German Army during manœuvres mounted officers, or orderlies on bicycles, are sent ahead of a marching column to warn the inhabitants of villages to turn out and have water ready on both sides of the road for the troops. If possible a short halt is made while the men refresh themselves; if time presses they must snatch a drink as they pass and if they can manage it, they also fill their water bottles.

The medical staff is keenly interested in the equipment the soldier carries and the manner of its adjustment; for every pound added to his load means the expenditure of energy at the rate of 4.5 small calories a minute, and an awkwardly placed load may interfere with his breathing, or do some other mischief.

Foreign writers pay the American army the compliment of saying that it has the best selected and best managed equipment in the world. Something appears to be wrong with all other equipment and the way it is carried, according to medical writers on the subject.

Here is what every soldier must carry about with him all the time while in the field: a rifle, weighing about 9 pounds, with bayonet, cleaning materials for keeping his gun in order, ammunition, and an entrenching tool; his clothing, including coat, trousers, puttees, boots, neckcloth, handkerchief, a change of underwear, identification disk, and first-aid dressing; food, including one reserve or emergency ration, or, in the case of the Germans and Austrians, two reserve rations, and in the case of the Russians two and a half; water bottle, mess tin, knife, fork and spoon, though the Russians carry merely a wooden spoon stuck in the boot in lieu of these refinements; accoutrements, including knapsack, belt, and braces; a great coat, and half a shelter tent, 4 x 6 feet which, upon being buttoned or hooked to another half carried by another man, forms a shelter for the two; personal necessaries, including toilet articles and spare linen. In the case of the British soldier this totals 47 pounds; in the case of the Ger-

mans, 38 pounds, and the French, 44 pounds. These lighter weights are due to the fact that the French and Germans carry fewer rounds of ammunition than the British soldier, who never has less than 150 rounds. The Russian soldier has the heaviest load of all to carry, 61 pounds; or, when he sets out with four days' rations and extra ammunition, 72 pounds.

The medical department also prescribes rules for the sanitation of the camp, disposal of waste material, and sees that public as well as personal cleanliness is enforced.

Though it finds its sphere of greatest usefulness in maintaining the troops at the maximum of physical efficiency, thereby contributing directly to their fighting effectiveness, the medical department has a second important function, and that is to relieve the field force of the incumbrance of sick and wounded. In this work the authority of the medical director, or chief surgeon, is supreme. In time of peace the medical department has constantly under its care from 3 to 4 per cent. of the entire force; in war, more than twice this proportion. The department must provide everything required for the well-being of the men, their medical and surgical treatment, food, clothing, and transportation, from the time they fall out of the ranks till they return.

Every soldier carries, in a sealed tin box, a first-aid packet, consisting of a bandage, gauze, and adhesive plaster. If the wound is but slight and in an accessible place the soldier may apply the dressing himself; if more severe, a comrade may apply it for him. The importance of this first-aid may be better understood when it is said that infection is the most frequent cause of death from wounds not immediately fatal. This first-aid serves the double purpose of preventing infection to a large extent and of checking hemorrhage, which ranks third in causes of death from wounds, shock being second. Military surgeons say that the great majority would recover from gun shot wounds if infection could be prevented. The fate of the wounded is in the hands of the man who applies first aid.

The wounded soldier, with or without first-aid dressing, passes back to the rear by way of dressing stations beside an ambulance in a spot that is more or less sheltered from hostile fire to the field hospital. As soon as he can stand transportation, he is passed on to the general hospital, and thence in due time to the convalescent camp to recuperate. A large proportion of the wounded require transportation by litter and ambulance to the field hospital, which is located as near the firing line as prudence will permit.

Though the medical staff of no two nations is identical, it may be said, in a general way, that equipment is provided on the theory that 10 per cent. of a division will be killed or wounded in a single battle. If the number engaged is 18,000, 20 per cent., or 3,600 will be dead on the field; 8 per cent., or 1,440, will be so severely wounded that it will be inadvisable to move them; 40 per cent., or 7,200, will be a walk, one half of them to the station slightly wounded at the rear, the rest dressing station, and 32 per cent. will transportation. In recent wars the m among the wounded collected and tran to the rear has averaged from 3 to 6 pe In the Manchurian campaign, one third wounded Japanese returned to the ranks a month.

In deciding on his arrangements for a the chief surgeon bears in mind that the w will be distributed in "zones of losses." usual proportion of wounded is 20 per c to 1,000 yards range; from 1,000 to 40 range, 60 per cent.; in the final rush 10 pe in pursuit, 10 per cent. The field hos not pitched till the tactical situation d and the point where the main attack i made is known. Then a site is chosen range of the enemy's fire, accessible to fr rear by road, yet off the route of marc vancing troops, convenient to wood an and, if possible, near buildings which used for the overflow of wounded, for, o casualties in battle are not limited by n the facilities provided may be overw Conditions on the battlefield are all unfa for clean surgical work, and it is often sible to reach many of the wounded fo The results achieved by modern milit geons under the difficulties inherent work seem little less than miraculous.

A pleasant fiction widely credited is t have been studying for years to make w humane — as if war could be human example, one of these "humane" devic small bullet at high velocity. Stories of men who, after being shot through t or head with a modern bullet, about meter of an ordinary lead pencil, have long distances to the dressing station a then recovered in a miraculously short

Military surgeons who have seen act vice tell a different tale. It is true tha slight wounds made by modern bull more quickly and thoroughly than in days. But severe wounds are no less se much more frequent.

The Germans use a steel-jacketed bul a core of lead hardened with antimon steel jacket frequently comes off in jagg ments which horribly lacerate the flesh.

The French bullet, a mixture of cop zinc, is not jacketed, but is longer and than the German bullet. Bent by ricoc it often enters the body as a hook; som "tumbles" and enters broadside on, m long, gaping wound. Up to a range eight hundred yards one horror is as ba other. These "humane" bullets hav general effects: up to a range of 500 ya have an explosive effect, splintering the thoroughly as to explain the frequent tion that explosive bullets have been u ranges of 500 to 1,500 yards the effect

:, grinding the bone to powder, and ·quently carrying with it into the wound ts of soiled clothing, thus causing gan- The third effect is contusive. A bullet :o an empty metal vessel enters and ›y a small hole. Fill the vessel with nd the bullet will still enter by a small t will make a large, jagged wound in The bullet has exactly the same effect ody or the head. In any case the bullet heavy blow as with a club.

rn bullets are "humane" only when d with the effects of shells, and it must mbered that a far greater proportion lties are due to shells than ever before. 'ranco-Prussian War, shell wounds were housand; in the Manchurian campaign ɔ had increased to 176 per thousand, he Balkan War of 1912 the proportion per thousand. The Russians in Man- :alled shrapnel "the devil's watering- When they burst they scatter hundreds bullets as well as fragments of the shell They are most deadly within a radius of ıirty yards, but even at a hundred yards the "dewdrops" are lively enough to penetrate six inches of pine. The common shell is still more terrible. The fragments, heated to a very high temperature by the explosion, burn the flesh so as to compel cries of agony that only morphine can quiet. The large shells of the navy not only cut like razors, but asphyxiate, amputate portions of the body, and crush. Altogether, the experienced military surgeon is not unduly impressed with the "humane" aspects of war.

The last service rendered to the soldier by the medical department is to see that he is promptly buried after the battle; for as he has now become rubbish, or waste matter, his disposal is properly a part of the sanitary work of the medical staff. The widow and orphans, waiting at home until anxiety deepens into dread, and dread into despair, may be able to form some estimate of the reverent care with which this last rite is performed for their loved one, "humanely" killed by modern methods, when they know that the chief surgeon, according to the standard authors, counts on a burial squad of five hundred men disposing of 140 bodies an hour, after the bodies have been collected.

CHANCE FOR AMERICAN SHIPPING

ıILITY THAT THE UNITED STATES MAY CAPTURE SOME OF THE GERMAN :ARRYING TRADE — ENGLAND LIKELY TO HOLD HER OWN — CONTROL OF THE SEA THE DETERMINING FACTOR

BY

SYLVESTER THOMPSON

ANY Americans have found one pious hope in the present European struggle: that it might stimulate the long deferred building of an American merchant marine. Ap- American enterprise has here a fairer nity than millions spent in subsidies ›rovide. The great carrying nations r sweep the seas. There are just about ' cargoes, however, to be carried; why ve not carry them? — carry them not the few months the war will probably ıt for all time? The United States tly occupies the position of a com- house whose chief rivals have suffered that amount to a practical suspension; ' business sense would spur us to take eir business. Not only our business se, but our position as a shipping coun- uld lead us to do this. The American t glances at the figures of the world's ; has something of a shocked surprise. heard so much about America's decline sea — about the possibility of sailing he world and never seeing the American flag at a masthead — that he naturally regards himself as belonging to a nation of landlubbers. In fact we are the second largest shipping nation in the world: England ranks first, and Germany makes not a particularly respectable third. The actual figures are 16,541,000 tons for England, 7,886,000 for the United States and 4,593,000 for Germany. But the disturbing fact about our large shipping industry is that it limits practically all its activities to the Great Lakes and our two great coast lines. Nearly all English and German shipping goes over seas; nearly all of ours stays at home. Our shipping, therefore, helps us out little in the present crisis. Possibly a few of these lake and coast vessels might be transferred temporarily to the transatlantic lanes; for the most part, however, they have plenty of employment in their accustomed waters. Shipping them to the high seas would cause a complete disorganization of coast and lake commerce; demoralize it as completely as the present ocean traffic is demoralized.

American maritime history discloses a series of ups and downs; accidental causes at times

have built up our mercantile marine, at other times have destroyed it. We were not much of a sea-faring people in colonial times; the policy of Britain always aimed at keeping this valuable business in the hands of Englishmen. But national independence swept aside all these antiquated navigation laws. The year 1790 saw the young United States with practically no mercantile marine; Englishmen were then our carriers, just the same as they are now. The first year of the century witnessed a change; we were then carrying 80 per cent. of our own products in American bottoms. By 1810 we were carrying 90 per cent.; a few years afterward we were carrying not only our own, but a considerable part of the world's. And then followed one of the most splendid periods in American commercial history. As a maritime nation America led the world; we held the position as a carrier that England does now.

What had caused the sudden rise of America as a great maritime power? This question has the utmost interest in view of the present situation. For the conditions that faced Europe in the early part of the nineteenth century strongly resemble those which face it now. It was the era of the Napoleonic wars. These struggles had one effect, practically identical with that we are witnessing to-day — the utter demoralization of European commerce. England and France were constantly preying upon each other's mercantile marine, the result being that the ships of both nations no longer felt secure upon the high seas. Both, as great maritime people, suffered a tremendous decline. Herein was America's opportunity, and splendidly she seized it. As a consequence — and here is another point that has a present practical application — we retained this sea supremacy after the Napoleonic era closed. The years from 1830 until about 1855 represented the greatest glory of the American merchant marine. By the time the civil war started, however, the decline had set in; by the time the war was ended, the greatness of our shipping, although the famous American clippers still sailed the seven seas, had disappeared. Authorities differ as to the cause of this change. A considerable number attribute to the civil war itself. The fact is, however, that our shipping had begun to decline several years before the civil war. By 1855, as already said, its greatness was a matter of history. A new material found use in the construction of vessels — iron. When this substance supplanted wood in ship building the knell sounded for the American merchant marine. There was then practically no American iron or steel industry. England, on the other hand, had greatly developed its iron resources. There was only one way, in those days, in which we could still maintain a standing at sea; that was by purchasing the new fangled ships in Europe, mainly in England. But this the law forbade. No ship that was not constructed in the United States could fly the stars and stripes. However, this i the many others used to explain the di ance of American foreign shipping, purely academic. The one fact is t though Americans have built up a la cantile marine in their own waters, th practically none on the high seas. We pay about $200,000,000 to foreign na the transportation of our products.

It is not surprising, therefore, tha should see in the present European c chance to regain our marine suprema did this when Europe was convulsed Napoleonic struggle; why should we n the performance now?

One or two considerations at once mind that apparently discourage enterprise. The Napoleonic wars, for lasted a long time — about fifteen year is long enough to permit pretty rad permanent readjustments. It gives p time for the creation of a mercantile and for the establishment of new tra tions. The present large shipping in Germany is little more than a matter of five years; a generation ago Germany go to England for her warships. No lieves, however, that the present conf will last fifteen years, or anywhere n long; if it lasts fifteen months, most will be surprised. The creation of pendently constructed American mar therefore, is not likely. Before w actually launch any new ships, the w be ended. One fact, therefore, is at parent. The commerce of the world to use such shipping facilities as it now About 15,000 ships now furnish the marine transportation. These ships trive to do so throughout the war, and for some time afterward. They may their flags or their ownership; if they off the high seas, however, the business kind will largely stop and many mi people will starve to death. One can what would happen to the United Sta our railroads stopped running. That cisely what is happening now, so far as commerce is concerned. Forces are at work to put an end to this paraly these efforts must succeed.

An analysis of foreign shipping by ality will simplify the situation. T example, American exports last year, nations that carried them. We find t

60 per cent. were shipped in British
15 per cent. were shipped in German
9 per cent. were shipped in American
4 per cent. were shipped in French ves

These figures bring out, as do similar statistics, the tremendous le of British foreign shipping. It not c passes that of any other country; it is than that of all the other countries c

American people are going to carry most
: own commerce in this war they must
only Great Britain's business but Great
's ships.

ERYTHING DEPENDS ON SEA POWER

re that happens, however, certain im-
: preliminaries must be settled. From
er point of view we survey this war, we
bly come back to the same point. It
ges upon one thing: the control of the
With the English navy dominating the
on, England probably cannot lose.
he English navy destroyed, England's
ler would come within a few weeks.
his question of sea supremacy has the
nportant bearing upon the question of
ssible boom in American shipping. If
d destroys or effectively bottles up the
n fleet, there is no reason why she cannot
the greater part of her shipping. Her
can carry nearly 60 per cent. of our
rce this year, as they did last. The only
: danger is an occasional capture by
n cruisers. This danger is so slight,
:r, that it can be practically disregarded.
d has nearly 10,000 vessels engaged in
rce. Where can Germany get any war-
o prey upon this enormous fleet? She
detach them from her main squadrons.
ll, the chief business of warships is to
the enemy, not to destroy its commerce.
cruiser that is taken from the battle
ll weaken a force already enormously
sed.

osing there are a few German cruisers
ng the ocean, what will happen to them?
d's fleet is so large that she can easily
le a few warships to destroy them. If
s not do so, where are they to get their
Where are they to take their prizes,
they capture them?

possible, again, that the English Govern-
nay press into the navy part of the mer-
marine.[4] But, with 10,000 ships, a
nany can be used this way without ma-
decreasing its efficiency.

MANY'S SHIPPING OUR OPPORTUNITY

t naval authorities believe that England
rance will secure the command of the
At the present writing the indications
at the great German high seas fleet is
up. Again the English Government has
d the insurance risk on British shipping.
tically says to the shipowner: "Go to
h your cargo; if you lose it, the govern-
will reimburse you." These and other
rations apparently dispose of the idea
mericans can supersede England on the
as as a result of this war.

ese predicted events come to pass, how-
nere still remains the question of German
rce. With the British fleet controlling the situation, Germany's mercantile marine, for all practical purposes, will cease to exist. Germany carried 15 per cent. of our commerce last year, against England's 60 per cent. Small as this seems in comparison with her great rival, this still represents a prize well worth striving for. Herein unquestionably lies the real American opportunity. Under normal conditions the sudden wiping out of Germany's mercantile marine would mean one thing; that England would capture it. But, with a tremendous war on her hands, England is not expanding her industries in any direction. The war expenses have so strained her credit that she would have the utmost difficulty in financing any new shipping enterprises. The same statement applies to France, the only other nation that could possibly step into the breach. The opportunity, in all its aspects, therefore, seems made for the United States. Germany now has about 2,000 ships, most of them engaged in the foreign trade. The present likelihood is that most of these will stand useless at the docks during the war. They represent a very large investment; how large there are no available statistics to show. Their loss of earning power will sadly inconvenience their owners, especially if the war is continued for any period. The companies will be so badly crippled that it will take them a long time to recover, when peace returns. In many cases offers to purchase would find a ready response. The extent to which America profits from the promised stagnation in German shipping depends upon the extent to which our capitalists stand ready to purchase these vessels. Congress will doubtless pass the legislation required to permit their transference to the American flag. There seems little likelihood that friendly nations, like England, will refuse to recognize this transfer, so long as it is actual and represents a permanent ownership. If the present aspirations materialize shipping acquired in this way would not represent a temporary, but a permanent holding. It would be the beginning of the long hoped for American mercantile fleet on the high seas. It is true that the removal of this prohibition on the purchase of American ships would take away only one disability that prevents our competing with Europe. The others are the higher cost of iron and steel and labor here and the higher cost of navigating. The first disqualification is rapidly disappearing. If we can make steel rails and compete with England in all the markets of the world, we can do the same thing with plates for steel ships. We still pay our workmen higher wages, but we have the compensation of an increased efficiency. Only one difficulty still remains in the way of building up an American marine. Our sailors get about twice the pay of English sailors and demand a better maintenance. How that will affect the situation remains to be seen.

FINANCIAL ASPECTS OF THE WAR

BY

ALEXANDER DANA NOYES

TO EXPLAIN the extraordinary financial phenomena which have accompanied the outbreak of European war in the closing week of July — phenomena which, in their character and scope, have never been paralleled in the history of international finance — something of retrospect is necessary. As every one knows, predictions and apprehensions over a possible general European war have been recurrent on Europe's financial markets ever since the Franco-Prussian conflict of 1870. Sometimes, as in the case of the Balkan War, they have reached proportions which caused grave disturbance on Europe's markets. If they have never been received with entire credulity, the reason undoubtedly was that the consequences, which experienced financiers could foretell from such a conflict, were, in their own words, so unthinkable that the war itself seemed inconceivable. European bankers, when asked, during these many past years, what would be those financial consequences, have usually replied that the sequel simply baffled financial imagination. All that they could say was that a general European war would necessarily bring to a halt the ordinary operation of civilized finance and trade, with what actual outcome on the markets no one cared to predict.

It cannot be said that this conflict of all the great European nations was expected, even by the states which have been involved, until a very few days before the war broke out. Nevertheless, there were many evidences in the markets of a peculiar character, which indicated at least, the strongest kind of uneasiness in that direction. In one sense, it may be said that financial preparation for this very war has been in progress ever since the Balkan conflict came to its end, early in 1913. The situation in which that peace agreement left the great European powers was by no means reassuring, and the first visible reflection of that uneasiness was that the Imperial Bank of Germany began the most urgent efforts to build up its gold reserve.

Tradition on the markets has it that when war between France and Germany threatened, in the Morocco conference in 1911, the Kaiser asked the German bankers whether the financial situation was in shape to confront a war and that they answered, "It is not." He then, according to the story, warned them to lose no time in getting themselves into proper shape. Whether this anecdote be authentic or not, the fact is that through employment of most unusual expedients, the Bank of Germany has added more than $100,000,000 to its gold reserve since that Morocco episode. A ver stantial part of this addition has been l by the Government itself in the Cas Spandau, along with $30,000,000 gold there out of the Franco-Prussian war inde But other European banks have not bee in the year since the Balkan War, the B France has added $170,000,000 to its g serve, mostly obtained through import fr United States, and the Imperial Bank of has increased its own gold holdin $150,000,000.

Now it is perfectly true that, unless in Germany, this heaping-up of gold great state institutions was declared not been inspired by apprehension of w France particularly, Governmental an cial authorities were careful to explain Bank was strengthening its reserve be the difficult financial position at Paris, cause of the very general hoarding of the French people, which began with break of the Balkan War, but which did when that war was over. The explana no doubt correct; yet, in the light of w happened since, it is not unfair to say t the hoarding by the people and the sub accumulation of gold by the Bank of must have been largely due to growth instinctive belief that war was immi any time.

So much for the longer period of prep Except for the inconvenience caused l gold accumulations in a few great ci international market was not greatly di When, however, Austria declared war o on July 28, the markets of Europe at once greatly excited. At Vienna, panic of t formidable sort broke out immediately; lin, the crash on the Stock Exchange phasized by the actual public recomm by some large financial institutions clients that it was best to sell their in securities. Here, in the United States, the reflection of this European appr in the engagement at New York, for E markets, of no less than $45,000,000 of during the ten days following Austri declaration. It was in this period that t *prinzessin Cecilie* sailed with her $10, in gold for London and Paris — an ext ary incident when one considers that th belonging itself to Germany, was carr treasure for the two nations which w tined to be at war with Germany by t the cargo could have been delivered.

nge that the ship should have been back to America from mid-ocean, and gold should never have reached its ion.

ieantime, and in advance of declaration etween Germany and France and Eng- d Germany, the demand for American Europe grew to a climax. While the is shipments of the closing week of July ng made, the foreign exchange market for the resultant operations of finance broke down. In addition to actual gagements, it was apparent that all was calling back, through instant trans- American credit balances. This made y the bidding for drafts on Europe, in antity that the New York exchange simply could not provide them. It had cient foreign banking credits. As a highest rate to which exchange on can go is around 4.89 to the pound for at any higher figure there is a hand- ofit in remitting with gold instead of But in the last week of July the rate exchange on London rose, first to $5 ound, then to $6, and at length to $7 — ig never previously witnessed in the rk market. It meant that the drawing nge on London had become virtually le, and that situation in a day or two y existed. It can best be described as a foreign exchange — which, as the meas- iternational finance, was appropriately where all that was to follow should have t foreshadowed.

in this same concluding week of July other foreign financial markets began lection of the expected war. Although did not declare war on Germany until ing of August 4, the London markets doubtedly anticipating such declara- ing the five or six preceding days. From f 3 per cent. in the middle of the pre- week, the Bank of England's official rate advanced on Saturday, August 1, cent., a rate only three times matched story of the institution, never exceeded, r reached at any time since 1866.

emarkable action in reality reflected a the Bank of England through which, July 30 and August 6, that institution ess than $52,500,000 gold; its banking igainst its deposits being meantime so n down that the ratio of reserve to s fell from the 40 per cent. of the pre- veek — a low rate for the bank — to eantime throughout the week, sales of s by Continental bankers and investors, ets from which they were soon to be cut ar, became so prodigious that the Paris ient closed the outside stock market ibited all but cash sales on the official But this converged the full force of ital security liquidation on London; n July 31, the Stock Exchange closed for the first time in a century. The Stock Exchanges at New York and elsewhere in the world immediately followed suit.

To trace the further progress of financial demoralization — which began, as we have seen, even before the declaration of war by England— it must first be kept in mind that in the present day all the great markets of the world are bound together as never before in a network of interlacing credit. Berlin bankers carry deposit balances in London to the extent of hundreds of millions sterling; so does Paris, and so also does New York. This indebtedness is not all one-sided; an enormous mutual indebtedness exists on all these markets, constantly maturing, constantly being paid off in the ordinary processes of exchange, and constantly subject to renewal. When England actually went to war the great Lombard Street banking institutions had their names affixed to bills of exchange, payment on which was due day after day but payment for which depended on the arrival of cash remittances or merchandise from the Continental markets. Both were cut off by the war, the seizure of railway facilities on the Continent, and the temporary embargo on ocean traffic. Technically, therefore, numerous London houses of the first importance were confronted with bankruptcy and in view of the whole abnormal character of the situation it was quite evident that the Government would have to intervene in their behalf. During the first week of August, in which war was declared by England, Monday was a regular bank holiday and therefore no business was done in financial London. The British Government first extended this holiday by decree until the following Friday; but the situation then being still impossible, the Government declared a general moratorium of one month — an expedient which meant that all financial and commercial liabilities maturing within that time should automatically be extended; but that the same postponement should not apply to salaries, rent or taxes.

The decreeing of a moratorium was in itself sensational enough. England had never before since the modern credit system was created resorted to that expedient; the very same action excited surprise and comment when adopted by the Balkan states at the outbreak of their war in 1912. But the moratorium did not show all of financial London's particular predicament. The run on the Bank of England so weakened the position of that institution as to threaten inability to maintain any reserve at all against its deposit liabilities in case the requirements of the Bank Act of 1844 were continued, whereby all notes issued must be fully covered by gold held in the institution's vaults. Therefore, on August 8, the Bank Act was suspended; a policy adopted only on three occasions since the passage of the law in 1844, all of them London panics, occurring in 1847, 1857, and in 1866. Although historically an event of such unusual importance, the suspension of the Bank Act created no very anomalous situ-

ation, since it simply means that the bank is authorized to issue additional notes without full gold "cover" in its vaults. It does not mean that the bank will have suspended specie payment on its notes, or that inflation of the British currency is at hand. On the contrary, even with the large additions made to its circulation in the shape of notes not directly secured in gold, the Bank of England still held a larger proportion of gold as security for its outstanding circulation than is held habitually by the Imperial Bank of Germany, by the Bank of France, or by the United States Treasury. All of this, like every important movement on the world's financial markets, must be judged partly as reflecting the actual political and commercial conditions of the moment, but largely also as foreshadowing the longer results. Precisely as the London stock and money markets fell into panic four days before Great Britain declared war on Germany, and thereby filled the prophetic rôle for which stock markets are always watched by the community at large, so the initial movements of the markets around the outbreak of any great war are a forecast of much that may be expected to happen afterward, quite outside the banks and the Stock Exchange and in the domain of general prosperity and industry. It is not too early to ask what the character of these later results may be expected to be on this occasion.

From the broadest view the economic effect of such a war as this can hardly fail to be unfortunate. Wholly apart from the suspension of peaceful commerce, finance, and industry, the waste of capital involved in such a contest is bound to be enormous. Five or ten millions of men, withdrawn from peaceful production and supported, while they engage in wholesale destruction, by money drawn by Governments from the private stock of capital, must necessarily arrest in some degree the development of the civilized world. The Franco-Prussian War certainly had this result on the states engaged in it, and, in a measure, on the rest of the world; so did the Boer War, and so the Russian-Japanese conflict. All were followed, especially in the belligerent states, by a period of financial lassitude and reaction which more or less faintly reproduced the prolonged and paralyzing effects following the 12-year Napoleonic conflict in which all Europe was engaged between 1803 and 1815.

Even Prussia, emerging victorious as the head of the German Empire in 1870, was hit with the full force of the panic of 1873. The noteworthy exceptions to this rule, in modern history, were the respective sequels to our own Civil War and to our Spanish-American conflict of 1898. In both cases — though the later after-effects of the Civil War were unquestionably serious to this country — it was the enormous expansion of natural resources not yet developed, and a combination of economic and industrial conditions highly favorable to the United States, which averted what might otherwise have been expected. This should be kept in min occasion; for although not a participa conflict, we still have to measure w probable share will be in the resultant losses, just as our financial markets are now from the outbreak of the war in with those of Europe.

But at this very point there are some ingly interesting distinctions to draw. as the shock of the sudden European co has been on the markets of the United the resultant demoralization of trade dustry was nothing whatever akin to tha prevailed in the neutral states of Euro only so, but there was evident from t an undertone of hope and confidence a eventual bearing of this foreign war on trade situation. I shall presently ende show how far this initial feeling was by the circumstances. But as to the e effects of this war on Europe itself, th be no doubt whatever. Campaigns suc now in progress are bound to cost eve belligerent state, according to the esti European experts, two to five million per day, and seven powers are now As far back as 1896, a much discussed estimate figured out at least $5,000,000 the necessary expenditure for France, any, or Russia. The estimate of Dr. Richet, a statistician of the University made the extraordinary calculation Germany, England, France, Russia Austria, and Roumania were all enga first-class war, the aggregate daily ex would run to upward of $50,000,000. a calculation, it would follow that, if lasted only as long as the short Franco War of 1870, the total outlay, exclusi indemnities, would exceed five thousa dollars.

The effect of all this on the financi dustrial prosperity of Europe itself f considerable time to come is bound reaching. Indeed, not only is the pri tal of Europe now being diverted fron pursuits into the prosecution of war repairing of destruction to property activities of the rival armies will nec continuance of that drain even whe is over. Already the German Reic granted a war credit of $1,250,000,00 Government, while the British war now reached the figure of $1,025,000,0 leaves the other belligerent states, France, Austria and Belguim, still to oned on. The longer effects of such waste of capital are difficult to trace any accuracy.

The break-down of our market for f change, the closing of our Stock Exch temporary embargo on export trade sufficiently indicated that even a neu like ourselves cannot escape the ind sequences of such a conflict as this. thing it will not do for our finance a

' on European capital for a consider-
o come. A very large and lucrative
le from Continental Europe has been
a good part of it will not be resumed
progress of the war. At the start,
n our export trade, as we have seen,
ort because of the risk of capture, the
cost of war insurance, and the im-
of negotiating foreign payment for
its of merchandise while the free
f foreign exchange was blockaded.
clear evidence that our situation had
n peculiar and unusual elements of
ppeared in the wheat market. Our
winter wheat crop had already been
when the war broke out; with the ex-
d of spring wheat, it should give by
gest harvest in our history, exceeding
rgest actual yield, according to the
it figures, by 150,000,000 bushels, or
t. This would leave by far the lar-
ble export surplus of wheat on record,
very moment when Europe's need of
r own early wheat crop having al-
short and her harvesters for the
ps ordered to the army, is urgent and
.
ious difficulty at the start to arrange
nt of this wheat brought at first
sity of opinion as to values in the
. But Europe, recognizing her own
eeded at once to guarantee the war
ake sure of the ocean highway and in-
facilitate exchange. The response
it market was a rapid and continuous
e, despite the enormous congestion
at our storage markets of wheat
temporarily shut out from the export
condition which ordinarily would
l in prices. This action of a highly
market was as significant an index
ral nature of the situation as an ad-
stocks would have been had the
hange been open. It meant, indeed,
merely breaking the blockade of
l more than the mere possibility of
r us in Europe a credit balance of
,000,000 to $300,000,000. Its real
was that means exist and can be
prompt restoration of a neutral
ade.
er significance of this must be judged
of the success with which European
rers in general, and German manu-
particular, have captured of recent
neutral export markets. This has
ially true of China and South Amer-
s been very marked in products like
extiles, in which trades we are a close
of Germany. The United States is
supply a great part of the shortage
ed in the neutral export markets.
e most serious problem in the matter
with the actual available supply of
n Germany, whose vessels usually
carry something like 4,500,000 tons out of the 37,500,000 total tonnage cleared from our ports each year for foreign markets, is shut off from the ocean highway. The process of obtaining transportation facilities to offset the idleness of the German merchant fleet will probably be slow. It should be effective in the end.

But in the meantime there is also the home consumer, who is now cut off from nearly $200,000,000 annual imports of merchandise from Germany — not to mention the effect of war on the total of something like $900,000,000 in merchandise sent to us annually from the whole of Europe. These home needs must be provided, and, in the main, our domestic manufacturers must undertake the task.

There is, however, another side. Even granting the necessary supply of ships for an increased ocean trade to be obtained, our finance and industry must largely do without European capital. Even if we gain ground rapidly in the neutral export markets, we have lost for the time certain European export markets — Germany, for instance, to which in the fiscal year 1913 our merchandise exports were $142,000,000 greater than our imports. No doubt this loss during war time will be largely compensated for by greatly increased exports, even to Europe when the war is over; for a great waste will have to be made good quickly; but, meantime, the problem of certain raw materials essential to some of our manufacturers, and obtainable largely or wholly in Europe, is extremely difficult. Chemicals especially, in many industries, and dyes in textiles will not be easy to replace during the trade embargo on central Europe. Such circumstances will probably alter the character and scope of many of our productive industries, and no doubt will seriously impair the activities of others. Back of all this stands also the awkward problem of the undoubted failure of our customs revenue under existing circumstances to meet the requirements of our own governmental expenditure. This may bring about the singular result of a Government loan or an increase in taxes, placed on a neutral community because foreign nations are at war.

There are few American business men who do not recognize the possibility that this country may be left at the end of the present conflict with vastly heightened industrial and commercial prestige. The result may even be restoration of the American merchant marine, which held its place among the great merchant fleets of the world between 1812 and 1862, but which now carries barely 14 per cent. of the tonnage cleared from our ports for outside nations, and which transports scarcely one fourth as much of our own exported commodities as do vessels under the British flag. All this may, and, to a great extent, certainly will happen. But the intervening process will be trying both to producer and consumer, even in the neutral United States.

RIGHTS AND DUTIES OF THE UNI STATES AS A NEUTRAL

THE APPLICATION OF THE HAGUE CONVENTIONS OF 1907, AND THE DECLA OF LONDON OF 1909 — RULES GOVERNING FOREIGN SHIPS IN AMERIC WATERS — AMERICAN EXPORTS AND THE LAW OF CONTRABAND

BY

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UPON the outbreak of the European war the United States finds itself placed in a new relation to each belligerent Power, and suddenly subjected to a variety of duties, and possessed of certain rights that accrue only in such abnormal times. With a merchant marine shrunken to insignificance, with a vast export trade threatened with paralysis by the lack of neutral bottoms, and with American citizens stranded by tens of thousands on European soil, we nevertheless face a situation that Washington would have rejoiced to substitute for that which confronted him in 1793, for to-day the United States as a neutral enjoys rights that were not dreamed of at the close of the eighteenth century; and those rights are in large degree codified.

To The Hague Conventions of 1907, concerning the rights and duties of neutral powers in naval war, and the rights and duties of neutral powers and persons in case of war on land, the United States is, happily, a party. It has also accepted the Declaration of London of 1909, concerning the laws of naval war. The purpose of that agreement was to make clear the law to be applied by the proposed International Prize Court, the arrangement for the establishment of which was formulated at The Hague in 1907. Though the powers have not established the Prize Court or accepted generally the Declaration of London, the United States has formally ratified both agreements. By so doing it has recorded its approval of the rules enunciated in the latter document. It cannot, therefore, complain of the conduct of any belligerent which may seek to conform to or rely upon them. Although the Parliament of Great Britain has acted adversely upon the Declaration of London, that country is, nevertheless, free to change its position and to make that arrangement the guide of its own prize courts. Deriving their law from that source, their decisions cannot be denounced by us as unjust. For these several codifications the United States has had to pay a price the extent of which is hardly yet appreciated. However useful may be the knowledge at the w mencement of hostilities of what a may reasonably expect, the rules th are in certain respects so adverse to in such a state that it is only through experience of a general European war United States can fairly estimate ho has conserved its vital interests in ac law principles that may now be re applied.

According to The Hague Conven United States as a government is refrain from taking any part in the partial participation does not su could not excuse the sale of arms to by pleading readiness to suppy likew or Russia. The scope of the duty of is broad. The government must no belligerent with anything that wi increase its fighting power, such as or other war material, or warships. to this general duty to abstain from tion, the neutral finds itself burde still more onerous duty to prevent and resources from being employed to the military or naval power of a The diligence required of a neutral by the "means at its disposal." T must be used to prevent the commis like acts within its waters, or the belligerent troops over its territory. tral is obviously not responsible fo powerless to prevent.

From the rules of the Treaty of W 1871, which made possible the Gene tion of the so-called Alabama Claim derived the well-known principle e happier terms in 1907, that "a neut ment is bound to employ the me disposal to prevent the fitting out o any vessel within its jurisdiction w reason to believe is intended to cruise in hostile operations, against a F which that Government is at pe same vigilance is required of a neut vent the departure from its territory there adapted entirely or partly f

ıded to cruise or engage in hostile Pursuant to this obligation the ; has already taken extraordinary ɔ prevent the departure from At- ɔf merchant vessels sailing under gs if equipped in such a way as to r own countries, and under con- ic service in case of war.

ɔntrast to these obligations is the rstanding that a neutral is not vent the export or transit for the ;erent of anything which can be of ny or a fleet. Thus the United required to prevent its citizens ır exporting arms or war material Such transactions would, never- itute direct participation in the ce be regarded as internationally as to subject the participant to ies in case of the capture of his ıch conduct would also, moreover, spirit if not the letter of President lamation of Neutrality of August it is declared that "the statutes ties of the United States alike ıo person within the territory and the United States shall take part, lirectly, in said wars."

ar is waged on land or sea, neutral eemed inviolable. As to this re- ıe Hague Conventions are explicit. in neutral waters are forbidden. *Kronprinzessin Cecilie* had been any enemy cruiser just as she chman's Bay on August 4th, the s would have had good cause to ration from the government of the vould also have found itself com- ıand the release of the vessel. A n not be set up on neutral territory al waters. Nor can belligerent e use of such waters for the purpose supplies of war material or of eir crews, or as a base of operations nemy.

ɔus purposes a belligerent warship ır to make use of neutral waters. Convention of 1907 indicates the privileges that such a vessel may to enjoy, and thereby enables the llow with certainty a course that ose it to the charge of unneutral t us consider a situation that A French cruiser, short of coal ns, and in an unseaworthy con- sued by the enemy, and puts into rbor to escape capture and to herself generally. Just inside of and she finds herself in the unwel- ıy of a German warship that made t a few hours earlier. The Hague ıas marked out the general course Jnited States should follow; and amation of Neutrality, President indicated with precision what we t. Accordingly, the French ship would be allowed fuel sufficient to enable her to reach her nearest home port, or half of that amount if she were rigged to go under sail and also be propelled by steam. Although the United States could, without impropriety, if it had adopted that method of determining the amount of fuel to be supplied, allow the vessel to fill its bunkers built to carry fuel, and thereby greatly increase her efficiency, the President has announced a rule that is consistent with our previous policy and in harmony with what was, prior to 1907, generally regarded as sound practice. The latitude accorded the neutral in 1907 was not sought by the United States, was vigorously opposed by Great Britain, and was the result of a compromise to satisfy the far-reaching demands of Germany. With respect to provisions, the French ship could supply herself with garlic and Aroostook County potatoes *ad libitum*, so long as the revictualing did not exceed the so-called "peace standard."

If it were in a seaworthy condition the German cruiser would be obliged to depart within twenty-four hours after its arrival. The French vessel might, however, be allowed additional time if needed for recoaling or repairs. The latter might necessarily consume a few days. Repairs would not be permitted that would serve to do more than place the ship in a seaworthy condition, and even such repairs would not be allowed if they necessitated a long sojourn. If, as in the case of the Russian ship *Lena*, that entered San Francisco harbor in September, 1904, during the Russian-Japanese war, necessary repairs would require a stay of several weeks or months, the vessel would be promptly interned by the United States. By interning the ship the United States would be taking measures to render her incapable of putting to sea during the war.

It was declared in 1907 that the citizens of a state which is not taking part in the war are considered as neutrals. To the Americans that are now in belligerent European countries that status is precious. It enables the possessor to escape numerous burdens which the state that is engaged in war justly and of necessity imposes upon its own citizens. One cannot, however, avail himself of his neutrality if he commits acts against a belligerent, or if he voluntarily enlists in the ranks of a party to the conflict. There are, nevertheless, services which the neutral citizen on belligerent soil may render without losing his distinctive character. Americans in Paris or Berlin might, for example, organize for the purpose of assisting in matters of police or civil administration. They might also furnish loans (if their means permitted) to one of the belligerents in whose territory they did not reside.

Neutrals on belligerent territory where martial law has been declared necessarily feel the rigor with which the government asserts its authority. It must be obvious that measures which, in seasons of peace, indicate abuse of power, in times of war lose their arbitrary aspect

and, despite harsh aspects, cease to be regarded as wrongful. Thus the movement of neutrals on belligerent soil may be restrained, and they may be even temporarily prevented from leaving the country. Slight ground for suspicion that they are acting as spies justifies arrest and ample inquiry to determine the grounds for such a charge.

To the people of the United States as a whole the war presents no graver aspect than in its bearing upon our right to export and transport to the belligerent countries food, clothing, fuel, and other things known as conditional contraband. To make clear the problem now confronting us a brief explanation of the law is necessary. "Contraband" is the term employed to describe an article which is liable to capture because of its use in the prosecution of the war, and because of its hostile destination. Contraband is subject to capture on a neutral vessel and is liable to condemnation. Goods which belong to the owner of the contraband and which are on board the same vessel are also liable to condemnation. Moreover, according to the Declaration of London, the vessel carrying such articles may be confiscated if the contraband forms "by value, by weight, by volume, or by freight, more than half the cargo." Maritime states have long been aware of the importance of the distinction between articles adapted solely for use in war, such as guns and projectiles, and those susceptible of use in the pursuit of peace as well as in that of war, such as food and coal. Articles of the former class have come to be known as absolute contraband, those of the latter as conditional contraband. The purpose of the distinction is to limit the right to capture articles of the latter kind to occasions when they are destined for an essentially hostile end, and to permit the capture of those of the former kind whenever they are bound for the territory of a state engaged in war. In order to protect neutral commerce from interference, the United States has struggled hard for recognition of the principle that what is capable of feeding and clothing, and otherwise ministering to the sustenance of the people of a belligerent state, should not be subject to capture and condemnation, unless shown to be not only capable of use in war, but also destined for that use. Though maritime states are not indisposed to accept this principle, there has been diversity of opinion respecting, first, what articles should be treated as conditional contraband, and secondly, under what circumstances articles recognized as such should be subject to capture. The Declaration of London appears to have solved the first difficulty by specifying in appropriate and careful lists certain articles as absolute, and others as conditional, contraband (and still others as not contraband at all). Thus arms of all kinds, gun-mountings, clothing and harness of a distinctively military character, animals suitable for use in war, and armor-plate are among the articles placed in th gory. They are subject to capture to territory belonging to or occup enemy. This is true whether the car goods is direct, or entails transh subsequent transport by land. Wh sive is the destination, not of the of the goods. Thus a consignment o shipped from New York on an Ame bound for Naples or any other neutral port, would be subject to capture, e sight of Nantucket, if it were show ultimate destination of the goods was

Articles in the second category, an by the Declaration of London as contraband, include foodstuffs, gold paper money, boots and shoes, vehicl for telephones and telegraph, fuel, and harness. These articles furnish a portion of the export trade of the Uni

The second difficulty already not cerning when conditional contraband to capture — is the all-important ques the United States to-day. In more co simpler form the question is: Whe contraband to be deemed to be inte hostile use so as to justify its capture significance of the answer that the b may give is hardly yet appreciated. popular attention in this country focussed on the lack of American neutral ships available for our fore Relying upon the assurance that " make free goods," we have concerne about vehicles of transportation ra with the safety of our produce. It is to note what assurance the Decl London affords. It is there prov conditional contraband is liable to shown to be destined for the use of forces of a belligerent, or for a departi Government unless, in the latter cas stances show that the goods cannot used for the purposes of the war. ception is not, however, applicable signment of gold or silver, or pape It is further provided that a hostile d is presumed to exist in case the good signed, not only to enemy authorities to a contractor in the enemy country matter of common knowledge suppli of the same kind to the enemy. similar presumption arises if the good signed to a fortified place belonging to or to another place serving as ba forces.

In the meantime American expor face the fact that, if propriety of to be tested by the Declaration of the belligerent Powers are in a p capture and condemn foodstuffs, other articles within the same categ an ease that renders shadowy and da vague the distinction between what ditional and what is absolute contrab

THE BALKANS

THE GREATER SERVIA IDEA WHICH BROUGHT ON THE IRREPRESSIBLE CONFLICT — THE SANJAK OF NOVIBAZAR, AN UNHEARD OF WASTE THAT WAS ONE OF THE PRIME CAUSES OF WAR

AT THE present time the most interesting thing about the Balkans is the idea of a greater Servia.

In Servia itself including territory recently acquired, there are about 4,500,000 Serbs. In Montenegro there are perhaps 500,000. In Austria there are nearly 3,500,000 Serbs and Croats who belong to the Servian Race.

The Servians dream and talk and write of a greater Servian kingdom that shall take in all the Servian race. They want it to take in more than that. They want it to take in Bulgaria, also. They look back to the time of King Stephen Dushan (fourteenth century) and his French wife, when Servia was supreme in the Balkans and was nearly as advanced in civilization as the most advanced nations of Europe. They feel that the recent battle of Kumanova against the Bulgarians, atones for the battle on the plains of Kossovo in 1389, which put Servia under Turkish rule — a battle about which the Servian peasants still sing folk-lore ballads. The reëstablishment of this ancient kingdom has become a passion with the Serbs, not only those in Servia, but many of those in Hungary as well. These Serbs might have become satisfied with Hungarian rule if it had been more enlightened, but the Magyars have followed a repressive policy in trying to Magyarize the races under their domination. No matter whose fault it is, the fact is that the Serbs of Hungary have watched with eagerness and delight the recent successes of Servia.

As explained by Mr. Morton Fullerton, in his "Problems of Power": "Up to 1905 this little nation of farmers and stock-breeders (in 1912, Servian exports amounted to about one hundred million francs, out of which 62 per cent. was represented by the products of the soil, and 20 per cent. by cattle and pork), remained in economic subjection to Austria. Austria's dream was to annex Servia to her great composite Empire. Whenever Servia displayed signs of political independence, Austria, who all but monopolized Servian exports, began the economic blackmailing of her emprisoned neighbor by closing her markets to Servian pork and beef. A Servian statesman, M. Pashitch, resolved to put an end to these humiliations. In 1906 he proposed a customs union between the three Slav states of the Balkans; he thus took the first step for the formation of that Balkan Confederation which six years later was to astonish the world. Servian live-stock was partially diverted from the old Austrian routes and transported by the Danube, the Ludwigs-Canal, and the Main to German markets. A second outlet for Servian products was procured at Varna by means of concessions accorded on the Bulgarian railways. A favorable treaty of commerce was arranged with France. Little by little the old trade-current through Bosnia and to the Dalmatian coast was diminished and Servia was now selling her pork and cereals, without the Austrian middleman, through the channel of the Black Sea ports and Salonika, in all the Mediterranean ports, from Syria by way of Egypt to Italy. The need of direct communication between the Danube and the Adriatic became steadily more obvious, and Servian claims to economic autonomy, the only form of independence which in the modern world is the sign of political autonomy, became more and more legitimate. Austrian imports fell from 60 per cent. to 35 per cent. Then came the war of 1912. Within only a few days after the opening of hostilities, Austria beheld the Servian troops in possession of Uskub, of old Servia, of a large portion of the sanjak of Novibazar, and rapidly making for the Adriatic coast-line. A national policy of more than thirty years was thereby suddenly stultified. Servia had burst her bounds, and was no longer the ward of the Dual Monarchy. In an adroit appeal addressed to English sympathy, through the *Times* (November 24, 1912), the Servian Prime Minister, M. Pashitch, explained that independence of trade and economic liberty were not only necessary for Servia's development, and even for her existence, but also advantageous to the world; an Adriatic outlet, he argued, would give Servia new neighbors, "since every maritime nation would then be Servia's neighbor as much as Austria is to-day." Servia was particularly happy at the thought that she was thus to secure direct contact with England, and to live henceforth in close relations with the nations of the West."

In 1908, when Austria-Hungary annexed Bosnia and Herzegovina, Servia felt that at any time it might be the next victim. The army which was launched first against the Turks and then against the Bulgars was originally prepared to meet an Austrian-Hungarian advance. It is now fulfilling that mission. Austria-Hungary has naturally chafed at the growth of a greater Servian kingdom which would mean not only the loss of her Serb provinces but also the end of her ambition for further outlets on the Adriatic and the Ægean.

The dual monarchy has felt that not only Servians individually but the Servian Government itself was preaching this hostile doctrine. A former prime minister, Count Aehrenthal, tried to shown the complicity of the Servian Government in the famous Agram trials, but it was shown that his evidence was forged. Nevertheless, the fundamental situation remained. Servia's success in the Balkan War was propaganda enough. Sooner or later, without the Servian Government's moving a finger, the Serbs of Hungary were likely to revolt. A successful Servia was therefore a perpetual menace to Austrian peace and integrity. When a Serb killed the Archduke Francis Ferdinand, Austria saw its opportunity to remove the constant menace from its frontier. It took his death as the excuse, and declared war.

If this were all the story the war would have been localized to these two countries. But Russia's policy has been to encourage the Slav kingdom of Servia in territory where the powers will not let her go herself. On the other hand, Germany has always hoped to reach the east through its ally, Austria. Before the last Balkan War there was a strip of territory, the Sanjak of Novibazar, belonging to Turkey, which ran up between Servia and Montenegro and touched Austria. Through this route Austria, and through Austria, Germany, hoped to reach the Ægean and the East. After the Balkan War Servia and Montenegro took this territory and put a solid line of Slav domination across the path of German-Austrian ambitions.

Unless the policy of years — the *Drang nach Osten* — was to be given up, here was another fundamental reason why Austria and the greater Servia idea could not live peaceably together.

In no country in the world has the question of population caused so much bitter dispute as in the Balkans. Because of racial and national animosities and jealousies, census figures have been deliberately padded and falsified, especially in that territory which was, until recently, European Turkey. Only in Bulgaria, Servia, and Greece proper have genuine census enumerations been made.

Bulgaria claims to have had a population, in 1910, before the war, of about 4,337,000, this being increased since the war, through new territory, by about half a million. Servia reported 2,900,000 in 1910, the new territory increasing this by a little more than 1,500,000. In Greece the population was 2,730,000 before the war and now is almost 4,400,000. Little Montenegro, one hundred miles in length by a bare eighty in width, adds a trifle more than 500,000 to the total. The estimate for Albania, on a conservative basis, is about 800,000.

It is in the proportionate numbers of the various races and nationalities, however, that the greatest confusion exists. Nowhere in the world is there such a variety of different peoples intermingling with each other.

Broadly classified, the Slavs, Turks, and the Greeks are the chief elements. Of these three, the Slavs predominate by a vast majority, but they again are sharply sub-divided into two branches; the Bulgars and the Servians.

Thecon sensus of opinion would indicate that the Greeks predominate in the large cities and towns and along the sea coasts. In the interior they are not found much north of Salonika. Greeks in the cities are found as far north as Varna and Bourgas, and even on the other side of the Danube, in Roumania, most of them being engaged in commercial vocations.

In the interior the Bulgarians claim that they constitute the main bulk of the population down almost to the foot of Mt. Olympus and as far west as Albania, up to Old Servia although the Servians claim that many of these people are really Servians Bulgarized. Thence, up to the old frontiers and over into Montenegro the Servians preponderate.

The Turks are nowhere found in a solid mass, but they are scattered over almost the entire Balkans, even up in the Austrian provinces of Bosnia and Herzegovina. Nowhere are they more numerous than in northern Bulgaria, along the banks of the Danube, and in the northern cities of Varna and Bourgas they still form a considerable portion of the population. The Bulgarian census figures give their number at almost 500,000, about a seventh of the total population. Servia only admits having 14,000 Turks within her territory, but this is undoubtedly an underestimate. There is no doubt that the Servians have been energetic in driving the Turks out of Servia during their longer period of independence.

Of the minor race divisions the Albanians deserve first mention. They are supposed to be the direct descendants of the ancient Illyrians, who have remained racially pure on account of the mountainous character of their country. While the majority are Mohammedans by faith, they differ markedly from the Turks, being rough in their manners, less fanatical in matters of religion, and not at all inclined toward steady pursuits. They are still in the patriarchial stage of social development, living in clans as did the Scottish highlanders two centuries ago.

Next to the Albanians in numbers come the Jews. These are the direct descendants of the Jews who were driven out of Spain during the period of the Inquisition by Torquemada and were so hospitably received by the Sultan of Turkey. To this day their speech does not differ very much from modern Spanish. Up in Bulgaria they number nearly 40,000, and farther south they become more numerous. In Salonika, now a Greek city, the Jews form a big majority of the population, numbering about 100,000 out of a mixed total of 174,000. Almost to a unit they are engaged in trade. They have always had friendly relations with the Turks and have enjoyed many special favors under the Turkish Government.

/allachs are another considerable por-
he population throughout the Balkans,
/ in the mountainous regions. They
ıally been classified as Roumanians,
differ somewhat from the Roumanians
ıania proper.

er scattered element is the Gipsy,
/ in Bulgaria and Servia. These
re the lowest in standards of living and
ıf all the Balkan races. While all of
ak Turkish, their natural tongue differs
y other Balkan dialect. They call
es "Copts," which alone would indi-
r Egyptian origin.

ıgh the Servians and the Bulgarians,
the biggest element in the Balkans,
ified as Slavs, there is still a striking
e in racial characteristics between them.
gar, slow, heavy, inclined to be morose
gue-tied, suspicious of strangers, un-
not really a pure Slav. Originally the
which he now occupies was populated
siatic race, called Volgars, because of
ving come from the River Volga. It
ed that they and the Hungarians and
s are of the same origin.

the Slavic hordes overran the country,
down to the borders of Greece. The
were completely overcome and assim-
ith the Slavs. To-day not a trace of
ginal tongue remains, the language of
garians being the purest of all the
alects, not excepting even the Russian.
still retain certain physical and tem-
tal characteristics that are distinctly
ic, such as their rather dark features
dity.

ervians are everything that the Bul-
are not. Physically they are fairer
e refined in appearance. By tempera-
y are light hearted, joyous, frivolous,
rming to deal with. Their country
ıre suited for defence, they were never
ly overrun by the Turks, and as a
nce they still retain, like the Greeks,
aristocracy of culture.

urks, too, present some wide differences
In the North of Bulgaria, along the
the Danube, there is a strong Tartar
mong them, whereas farther south
them are simply converted Bulgars,
ɔmaks, speaking the same tongue as
ıristian neighbors, but hating them

there to be found a permanent friend-
ween any of these elements. That
ld unite, even temporarily, during the
ɔon Turkey was the wonder of wonders
o have an acquaintance with the peo-
he Balkans. This mutual animosity
ɔundation in history as well as in dif-
ɔf race. In recent times Servia and
have fought each other twice. The
ave a universal prejudice against all
ıerever they live.

4, when Bulgaria took over the rebelling province of Eastern Rumelia from Turkey, Russia, fearing the menace of a territorially aggrandized Bulgaria, yet not daring to interfere openly on account of the attitude of Great Britain, persuaded the Servians to attack Bulgaria. The Servians were completely routed in one three-day battle, for which defeat Russia was never able to forgive Bulgaria. On their side the Bulgarians, though feeling a warm affinity for the Russian people, have always violently hated the Russian autocracy. Nowhere in Europe have the Russian political exiles found a surer refuge than in Bulgaria. Of all countries this is the only one which has steadily refused to molest these refugees at the behest of the Russian police.

Servia, on the contrary, has always looked to Russia as its protector against the aggressions of the Austrians. As a natural political result Bulgaria has found it necessary to maintain an understanding with Austria, to counteract the continual Russian intrigues against Bulgarian independence. Aside from that policy, of which the mass of the people know little, the Bulgarian has little sentiment to waste for the "Schwab," as he calls all Germans. In any general upheaval it is more than likely that politics would be forgotten if the will of the people were consulted, and Bulgaria would stand side by side with the Russians.

With the exception of the northern Albanians, who are chiefly adherents of the Roman Catholic Church, all the Christians of the Balkan countries belong to what is generally known as the Eastern, or Greek, Catholic Church. At one time it was really the Greek Church, with the Patriarch at the head, which included them all within its flocks. But after the liberation of Servia and Bulgaria these countries formed separate churches, between which and the original Greek Church there existed an animosity which was not felt toward the Roman Church. As the various governments have warred for territory, so these churches have fought for adherents. The original Greek Church carried its propaganda so far that it organized bands of armed men who overran parts of Macedonia, forcing the adherents of the other churches to declare themselves Greeks, the alternative being the destruction of their villages, cattles, and even themselves and families. Nor were these empty threats; actually thousands of people, both men and women, were killed by these terrorists of the Church and dozens of villages were burned. The peasants, on their part, organized armed bands to protect themselves against the Greek Church, and many were the bloody fights engaged in by these armed bands, the Turkish soldiers supporting the forces of the Church while the peasantry gave aid and comfort to the informal militia bands. Hardly a peasant in the mountain regions but has been out at least once in a general or local insurrection against the Turks or against the terrorist bands of the Greek Church.

ITALY'S HATRED OF AUSTRIA

WHY IT HELD BACK FROM ITS ALLIES OF THE TRIPLE ALLIANCE

THE reason that Italy held off from its allies in the Triple Alliance is written large in her history. The grandfather of the present king of Italy, Victor Emmanuel, of Sardinia, with Cavour's guidance, made an alliance with Napoleon III and picked a quarrel with Austria in 1859 much as Bismarck in 1866 made a treaty with Italy and picked a quarrel with Austria. In each case these nation-builders deliberately provoked war as a means to the unification of their country. In the campaigns of 1859 Lombardy was taken from Austria. In 1866, in alliance with Prussia, Italy went to war with Austria again, this time, chiefly as a result of the Prussian victory at Sadowa, receiving Venetia from Austria. Austria was held to be the chief enemy of Italy's independence and unity. Despite this, however, in 1882 Italy joined Germany and Austria in the Triple Alliance. This unnatural alignment was entered into chiefly because France, Italy's normal ally, had blocked her colonial ambitions in Tunis. Yet the alliance never made Austria popular with Italians, nor did it cover the Mediterranean or the Adriatic. The head of the Adriatic is a constant source of enmity between Italy and Austria. In Trieste and Fiume, seaports of Austria, the population is chiefly Italian. Italy has always coveted not only these ports but the Albanian shore of the Adriatic as well. She looks with suspicion upon the German-Austrian attempts to dominate the Balkans. Early in the Italian-Turkish War Italy began to bombard the Albanian coast, then held by Turkey. She wa diately warned off from Avlona by This added fresh vigor to the old a Again, the tension over the control Adriatic was so acute during the Balk that there was even a possibility of b between Italy and Austria. When, th the question of renewing the Triple came up in 1913, it was only with g ficulty that Germany succeeded in Italy to join it again, even though it wa defensive alliance and did not incl Mediterranean. The Italians look upo ing Trieste and the control of the Ad the French look upon reconquering Al Lorraine.

Austria stands fair in the path of th tion. The memory of former wars recognition of present conflicting polic the Italian people unwilling to support The Italian Government's decision th not bound to help Austria and Gern cause they were not engaged in a war relieved it from entering upon a policy which would probably have public support.

Moreover, Italy has nothing to g war against the Triple Entente, unless be part of France's North African po The chance of acquiring these would worth exposing a long coast line to th and English Mediterranean fleets. contrary, a German-Austrian victo almost certainly work harm to Italy's control in the Adriatic.

"MADE IN GERMANY"

JEALOUSY OF "MADE IN GERMANY" — THE FLAG THAT FOLLOWS TR

THERE," said a famous German diplomat, pointing to a box marked *Made in Germany*, "is the Briton's grievance against us. Too many things are made in Germany."

Germans generally believe that it is jealousy of Germany's phenomenal industrial progress and her fast growing merchant marine that has caused the talk of war between England and Germany for the last decade. In a measure this is true. The old agricultural Germany has become a vast workshop. It imports food for one seventh of its population of 64,000,000 people. It has become to a measure a nation like England that must have outside to prosper, for its home consumption take up the goods it makes. To ge markets it has built up its great marine and to protect its merchant has built its great navy. The German ment is intimately linked with Germ German diplomacy, like most others, i diplomacy." Germany's foreign poli designed to find larger markets for increasing German manufactures. W many, as with other countries, the flag to follow trade. German manufactur a trade outlet to the East. For exan

ı Government, through its Austrian trying to reach the Ægean Sea. In its ommercial and maritime rise the Euro- ɔuntries that it has most often met in ition are England and France. Nat- :heir policies and their colonial empires ɜed to encourage their own trade rather ermany's. To ensure the future of its trade Germany has in the last decade ı contest Great Britain's supremacy on ı.

many's expansion," says a writer in the 'ork *Evening Post*, "is a natural phe- ɪn. The country is overpopulated. It ɛpand. The Atlantic Ocean is a barrier vesterly expansion. The north is unin- The south is being drained of its re- by active and intelligent inhabitants. *ang nach Osten* of German Imperialism fore inevitable. The line of least resist- ɔints to the east, where fertile territory development.

le wonder, then, that the attention of ıy's far-seeing statesmen has been di- toward Oriental countries, whose wealth ral resources and genial climate combine ler them ideally attractive. The ver- ales and forest-clad mountains of Ser- ·eece, and Bulgaria abound with raw l necessitated by Germany's increasing es. Beyond the narrow watercourse ıing between Europe and Asia at the elles and Bosphorous lies Asia Minor, a arvellously rich in minerals and suscep- great agricultural development. Farther the dawning sun the exceedingly fertile ıtamian valley, once the granary of the l world, stretches between the western tes and Tigris, and bids fair to provide humanity anew with vast supplies of grain and cereals.

"This is the vision which has dangled alluringly before the minds of German and Austrian statesmen, working hand in hand, Austria paving the way in the Balkans, Germany forcing herself successfully in the control of Asia Minor, which to-day is a German colony all but in name. By their joint efforts, the Teuton brothers have laid the foundation of an empire whose northern shores will be washed by the Baltic and whose southern boundary will be formed by the Persian Gulf."

To the east, in South America, in China, the great German fleets are carrying the products of German mills and German factories. That phenomenal growth, however, like most such things, has developed certain weaknesses. The iron ore of Germany is not inexhaustible and already the Krupps, the German steel king Thyssen, and others have gone into Scandinavia, into Belgium, and into Morocco. As Germany is likely to need raw materials from abroad in the future, it already is a great borrower of capital. There is not money enough in the country to finance its industry. But over the border in France there are available funds. So in times of peace the French bankers finance German industry. But in times of war or threatened war there is no French money to be had. In the fall of 1911 for instance, when the Agadir incident seemed capable of producing war between the two countries, Germany had to borrow 60 million dollars from the United States at twice the usual interest rate. It is generally believed that Germany's financial dependence prevented a war in 1911. Since then both Germany and France have been hoarding gold for the struggle which is now on.

HOLLAND DEFENDED BY WATER

BY LETTING IN WATER THAT KEEPS OUT THE ENEMY

WATER is the only means of defense of the low countries. Belgium in her splendid fight against Germany's breach of her neutrality has had the advantage of the ls which make the eastern frontier of her easily defendable. The Kingdom of therlands has no hills and to keep the f the country intact it is obliged to sac- any miles of territory which during the ɔf ages she has gained upon the ocean. of a defensive line of hills Holland has sive line of water. The Dutch govern- :ver has been very liberal with the details vaterline defense and the fortifications n time of peace look like artificial hills with a luxurious coat of grass, can never be approached by the curious tourist without an immediate warning not to come too near and to refrain from getting a very thorough look at these strangely shaped mounds.

In case of danger the government would be removed from The Hague to Amsterdam. The troops in the outlying provinces would slowly retreat, destroying the bridges across the large southern rivers and thus stopping the progress of the enemy for several days. They would then occupy the fortifications around Amsterdam and make ready for a siege. The German invader might come as far as the dikes of the old bed of the river Rhine but from there on he would meet with grave difficulties. The large artificial lake which would be formed by opening the locks of the canals near Ymuiden and

Katwyk and the dikes near Amsterdam would, within twenty-four hours cover the entire countryside with a coat of water which is too deep to be crossed by a wading force, and which at the same time is too shallow to allow the use of armed vessels. It is true that modern siege guns might fire across this expanse of water. But the nature of the ground of the outlying territory is such that it will be so thoroughly drenched after a few hours contact with water that no heavy siege gun can be posted upo muddy substance.

The system of defense is a desperate on will mean the loss of untold millions. I mean the undoing of the work of five c centuries. But in case the independen Holland is attacked it is the only mea which the people can show their aversi foreign domination; and in the past they several times made the sacrifice.

WHAT AMERICA THINKS OF WAR

A UNIVERSAL FEELING THAT THE KAISER HAS FORCED ON THE CONFLIC

BY

C. D. M.

AT THE outbreak of the great war in August, 1914, I made it my business to ramble about the streets of New York among the crowds watching the newspaper bulletins, at cafés, on street-cars, talking with everyone I came across. The current of popular feeling was not difficult to trace. Denunciation of the Kaiser was in most cases a sure passport to the approval of the little knot of listeners who gather to every argument. From the Battery to the Bronx, everywhere I found a definite anti-German sentiment. Not against the German people, of course, who are bound to us by close ties of blood and commerce; but against the Kaiser and the whole armor-plated superstructure of German militarism which seems to have cudgeled into war a people flourishing in the arts of peace, a people whose genius is for literature and art and commerce, the kindest-hearted people in the world. Sympathy with the Germans there exists in abundance, and horror at the task which their troops are called upon to perform. But approval of the German war office? No! Unless it comes from Germans or Austrians themselves. Near the *Staats-Zeitung* office, or at the Kaiserhof, Lüchow's, the Hofbräu, Little Hungary or any other of the well-known pan-German restaurants one may hear "Hoch der Kaiser" uttered in all sincerity; but even there one finds thoughtful souls who think that the War Lord is costing the Fatherland dear.

Any serious attempt to find the prevailing national sentiment behind the street clamor must reckon with the tremendous growth of socialistic and anti-autocratic feeling which the war is causing. A Europe generally undesirous of war has been hurried into conflict by a few men — such is the prevailing idea.

The death of M. Jaurés, foully murdered for having been brave enough to protest against warlike preparations, has not gone unnoticed.

A handbill on the street announces a anti-war meeting of socialists. The le began:

"WAR IS HELL
And the workers of the world
Are roasted in its fires."

The sentiment is crudely expressed but any one doubt its essential truth? So in a the war is acting as a terrible public educ

"I hope the war will be sharp enough to the Germans of their Kaiser folly" said man to me. The New York *Evening Post* v a large public when it prophesies the defe the Kaiser's armies and says:

"Out of the ashes must come a new Germ in which pure democracy shall rule, in no one man and no group of professional killers shall have the power to plunge the world into mourning. If this be treas Germany, our readers must make the m it. To our minds, it is of profound signifi that so many Americans are saying t 'We wish that the Kaiser might be beate the German people win.'"

Undoubtedly Americans are realizing has never been so plainly brought home b the cruel folly of a nation hurried into w an unrepresentative military clique. It nificant that so many editorial-writers now for the first time appreciated the va this country of President Wilson's poli Mexico.

In the crowd circulating in front of the ace Greeley statue by the *Tribune* Buil asked fifty men of all classes, all Americ far as I could judge, whether they were f Germans or against. The count was 8 fo 42 against. If hard words could have the Kaiser, he would have perished speedi City Hall Square. The verdict of the Am people undoubtedly is that the war was " in Germany."

IRONOLOGY OF THE DIPLOMACY THAT LED TO WAR

N JUNE 28th a Slav who thought he was a patriot killed the German Archduke Francis Ferdinand, heir to the throne of Austria. An inquiry was begun in which evi- as introduced to show that the assas- k was part of a plot for the revolt of thern Slav provinces of Austria, in- by Servians if not by the Servian ent. On July 23d, however, before stigation was completed, Austria sent atum to Servia demanding that it use ans in its power to punish the assassins to stop all further anti-Austrian propa- Austria demanded that she be permit- ve representatives in the work of in- on.

JULY 24TH

ly 24th, Russia joined the little Slav in asking for a delay. Austria refused this.

25TH

y 25th, ten minutes before 6 p. m., the en the ultimatum expired, the Servian gave his reply to the Austrian Am- at Belgrade: Servia agreed to all the s and apologies demanded by Austria, hat allowing Austrian officials to par- in the inquiry to be conducted in to the assassination of the Archduke. s was not definitely refused.

27TH

y 27th, the Austrian foreign office issued ent in which appeared these words:

bject of the Servian note is to create the ession that the Servian Government is pre- great measure to comply with our demands. matter of fact, however, Servia's note is the spirit of dishonesty, which clearly lets that the Servian Government is not seriously d to put an end to the culpable tolerance it has extended to intrigues against the ungarian monarchy."

notified Austria that it could not allow territory to be invaded. The great ion had come to the rescue of its little Semi-officially, Germany let it be hat no one must interfere with the -Servian entanglement — an intima- Germany would back Austria.

m the trend toward war Sir Edward e British Foreign Secretary, made the proposal that mediation between nd Austria be undertaken by a con- f the Ambassadors in London. France ly accepted the proposal. Germany tria declined.

28TH

On July 28th, came the official announcement that turned Europe into an armed camp:

VIENNA, July 28.— Austria-Hungary's declaration of war against Servia was gazetted here late this afternoon. The text is as follows:

"The Royal Government of Servia not having replied in a satisfactory manner to the note remitted to it by the Austro-Hungarian Minister in Belgrade on July 23, 1914, the Imperial and Royal Government finds itself compelled to proceed itself to safeguard its rights and interests and to have recourse for this purpose to force of arms.

"Austria-Hungary considers itself, therefore, from this moment in a state of war with Servia.

(Signed) "COUNT BERCHTOLD,
"Minister of Foreign Affairs of Austria-Hungary."

29TH

On July 29th, the Czar issued an imperial ukase calling all reservists to the colors.

On July 30th, the German Chancellor, Von Bethmann-Hollweg, showed where he stood in the following telegram to the German Ambassador at Vienna:

"We cannot expect Austria-Hungary to negotiate with Servia, with whom she is in a state of war. The refusal, however, to exchange views with St. Petersburg would be a grave mistake.

"We are indeed ready to fulfil our duty as ally. We must, however, refuse to be drawn into a world conflagration owing to Austria-Hungary not respecting our advice. Your Excellency will express this to Count von Berchtold, Austro-Hungarian Foreign Minister, with all emphasis and great seriousness."

In reply to this communication Count Berchtold told the German Ambassador that the Austro-Hungarian Ambassador at St. Petersburg had already been instructed to begin negotiations with Sergius Sazonoff, the Russian Foreign Minister. But nothing came of these efforts.

30TH

On July 30th, Germany asked Russia to stop its mobilization and asked for a reply within twenty-four hours. England notified Germany that if a general conflict should occur it could not stand aloof and see the balance of power in Europe destroyed.

31ST

On July 31st, Premier Asquith announced in the British House of Commons:

"We have just heard, not from St. Petersburg, but from Germany, that Russia has proclaimed the general mobilization of her army and her fleet, and that, in consequence of this, martial law is to be proclaimed in Germany.

"We understand this to mean that mobilization will follow in Germany, if the Russian mobilization is general and is proceeded with."

Russia paid no attention to the German ultimatum, but M. Gorymykin, president of the Council of the Empire, issued a manifesto which read:

"Russia is determined not to allow Servia to be crushed and will fulfil its duty in regard to that small kingdom, which has already suffered so much at Austria's hands."

The German Ambassador, Baron von Schoen, went to the French foreign office and expressed the fear that dangerous friction might arise between the Triple Alliance and the Triple Entente in the event of the Powers of the Triple Entente not taking steps to localize the conflict between Austria and Servia.

AUGUST 1ST

On August 1st, the German Ambassador handed the declaration of war to the Russian Foreign Minister at 7.30 P.M.

The French Government issued a general mobilization order.

2D

On August 2d, Germany began the invasion of France through the Duchy of Luxemburg. As this territory was neutralized by the Powers, including Germany, in 1867, this act was generally criticized as involving a breach of treaty. England asked Germany if she would respect the neutrality of Belgium. Germany replied that she could not answer the question at that time. The British Cabinet spent the day in secret session discussing what attitude England should assume.

3D

On August 3d Germany sent an ultimatum to Belgium demanding free passage for her troops. Germany said that it already had information that France was to use Belgium as a military base. Belgium refused entrance to German troops and demanded that Germany respect her neutrality. She followed up her reply by proclaiming martial law. The French Government declared martial law in France and Algiers.

Sir Edward Grey, the British Foreign Minister, in the House of Commons, read a telegram addressed to King George by King Albert of Belgium, asking "the diplomatic intervention of Your Majesty's Government to safeguard the integrity of Belgium." So far as England's treaty obligations with France were concerned, said Sir Edward, "we have perfect freedom to decide." For years England had "had a friendship with France. Whether that friendship involves obligations, let every man look into his own heart and feelings and construe the obligations for himself. If the German fleet bombarded the unprotected French coast," he added, "England could not stand aside with its arms folded." The German Am had made a strong bid for British s The Emperor had promised not to a northern and western coast of I England would remain neutral. Jo mond, the Nationalist leader, arou enthusiasm by pledging the suppo Irishmen, Protestant and Catholic, to course England decided on.

Italy proclaimed her neutrality. a member of the Triple Alliance, this her statesmen explained, was intende tect the parties to it against an atta interpreted Germany's and Austria' amounting to an aggressive war.

The German Emperor gave the Ru bassador his passports.

4TH

On August 4th, England sent an to Germany, demanding a satisfact by midnight on the question of the of Belgium. King George's proclam manding the mobilization of the Bri was read from the steps of the Royal Parliament voted a war credit of $5 No reply having been received from the British foreign office announced t of war existed with Germany, datin P. M. August 4th. Meanwhile Ger given his passports to the British A in Berlin.

5TH

On August 5th, President Wils the good offices of the United State tempt to bring about a settlement of pean difficulties. The Germans attack upon Liège, Belgium, and wer

6TH

On August 6th, Austria-Hungary war on Russia. The Austrian A left St. Petersburg. .

7TH

On August 7th, the German Govern strong representations to Italy, in it enlist its participation in the war. I ever, maintained her neutrality. T issued a proclamation asserting that German progress was the real cause o

8TH

On August 8th, Portugal anno decision to support Great Britain.

9TH

On August 9th, Servia declared w Germany in order to get rid of the G bassador.

10TH

On August 10th, France declared w tria as a result of Austrian troops aiding

13TH

On August 13th, Austria and Gre each declared war on the other.

esident Wilson on Foreign Policy

October, 1914 THE 25 Cents

WORLD'S WORK

The War Lord in his own words

A Human Document Story

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The World's Work

ARTHUR W. PAGE, EDITOR

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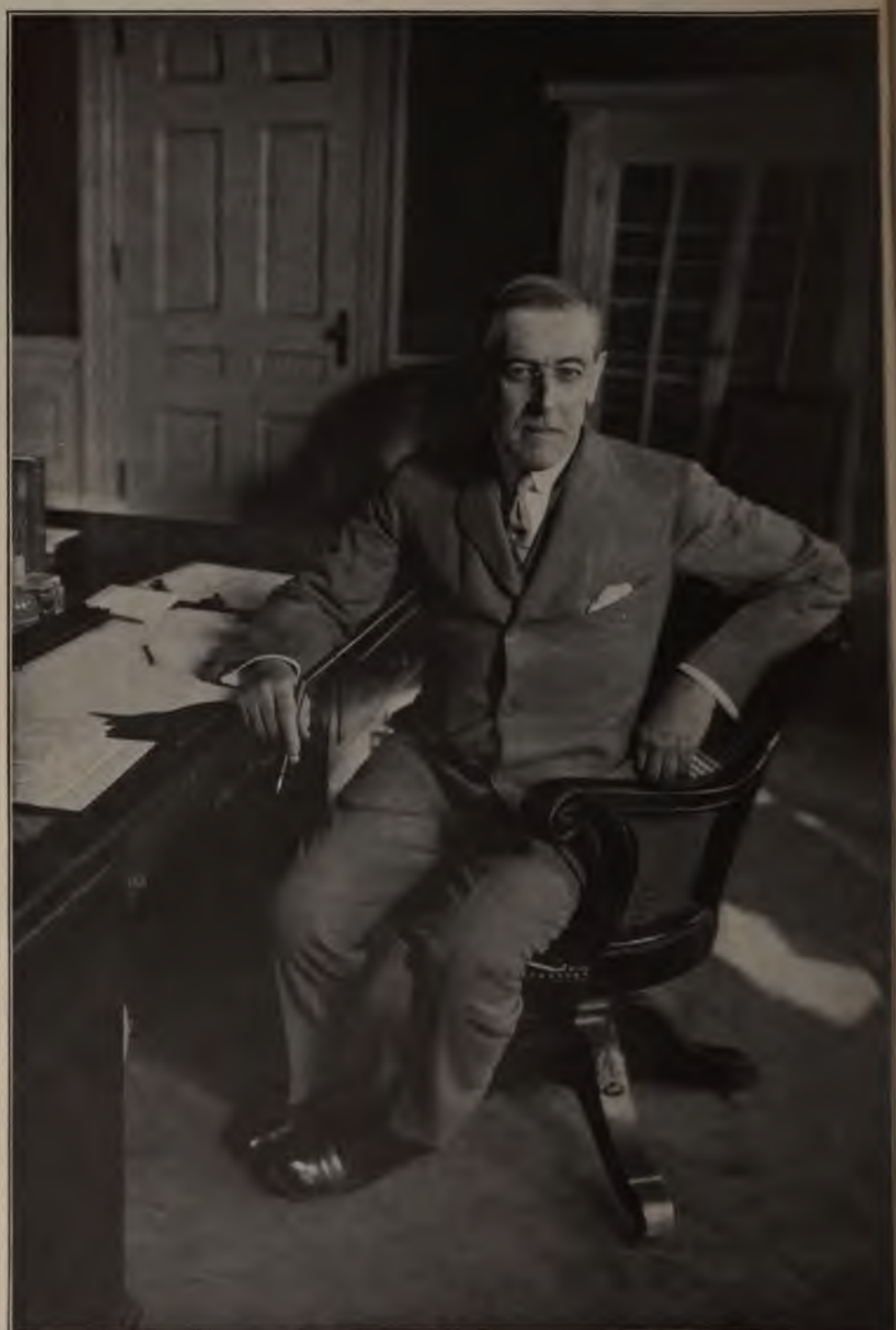

"I HAVE NO ENTHUSIASM FOR WAR; BUT I HAVE AN ENTHUSIASM FOR THE DIGNITY OF THE UNITED STATES"

THE
WORLD'S WORK

OCTOBER, 1914

VOLUME XXVIII NUMBER 6

THE MARCH OF EVENTS

WE MAY be profoundly grateful for the Atlantic Ocean, for a policy that has kept us free from entangling alliances, and for a President whose sanity is impervious to the germs of war. The frightful conditions of Europe suddenly throw into high relief the blessings which we have come to think of as normal. The slaughter house in Europe is the saddest thing in the history of the world. Hundreds of thousands of lives are lost, millions of careers are ruined; nearly every man of fighting age in Europe will see men butchered like cattle. The taste for blood is raised in them all.

What the Channel and the North Sea are to England the Atlantic and the Pacific are to us. We are far removed from the congested centres of jealous Powers which crowd one another in Europe. With our neighbors we live without the assumption of a coming war. There is not a fortification on either side of either border.

We have no foreign policy of aggression. We have no alliances. By alliances and treaties a punitive expedition by Austria against Servia drags all the nations of Europe into the war.

What a picture of distrust the "white papers" present! Austria promised Russia to take no Servian territory. Russia did not believe the promise. Russia promised Germany that it was not mobilizing. Germany disbelieved the promise. England distrusted Germany. No nation trusted any other. Europe was not only an armed but a suspicious camp.

We have not always acted so as to avoid suspicion. Yet we have a record of fair and generous action. We kept our promise to come out of Cuba. We have given China back the Boxer indemnity and we have grabbed no land or concessions from her weak, unwilling Government. We have demonstrated that we have the moral courage not to take Mexico, and we have shown by repealing the special favor to our coastwise ships at Panama that we have the bigness of soul to stand by an agreement even if we have the power to get out of it.

Our policy of friendship to all and entangling alliances with none was made for us by wise men a hundred years ago who had before them Europe in torment even as we have now. It is a sobering and awful sight. May we in all wisdom and humility learn as much from it as did they!

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WASHINGTON NEWSPAPER CORRESPONDENTS WHOM PRESIDENT WILSON MEETS TWICE A WEEK FOR AN INFORMAL TALK ON PUBLIC AFFAIRS. HITHERTO UNPRINTED EXTRACTS FROM THESE TALKS ARE PUBLISHED IN THIS ISSUE OF THE WORLD'S WORK

PRESIDENT WILSON ON HIS FOREIGN POLICY

THE PRINCIPLES THAT GUIDED HIS ADMINISTRATION IN THE MEXICAN SITUATION, THE PANAMA TOLLS, AND OTHER MATTERS AFFECTING INTERNATIONAL RELATIONS

[*The following pages are extracts taken from the hitherto unpublished stenographic reports of President Wilson's bi-weekly talks with the Washington newspaper correspondents. They are published with the idea of making clear the fundamental principles which have guided the President in his relations with foreign powers.*]

I

MEXICO

A COUNTRY of the size and power of the United States can afford to wait just as long as it pleases. Nobody doubts its power, and nobody doubts that Mr. Huerta is eventually to retire.* There need be no hesitation in forming the judgment that what we wish to accomplish in Mexico will be accomplished. But these people who are in haste to have things done, as they say, forget that they will have to do them themselves. They will have to contribute brothers and sons and sweethearts to it if they want something done right away. If they are willing to wait, that will not be necessary.

So far as the recognition of Mexico is concerned, what we are waiting for — what all the governments are waiting for — is the regular process by which they are expecting soon to establish a constitutional government. I want to say a few words about the United States situation, so that nothing may be done or said which will make it more difficult to handle than it is now; so that you will know exactly what is in my mind and for your guidance. The trouble is that we don't know what is going on in Mexico. I have reason to believe — I always have to say that with regard to Mexico, because nothing appears to be certain — but I have every reason to believe that the reported demonstrations in Mexico City against Americans are fomented and manufactured by a small group of persons who are

*The date of these remarks was March 2nd.

trying to force this Government to recognize the government of Mr. Huerta; and there is an equal artificiality attaching to a good many other things that are said to be happening. Upon examination, they don't turn out, so far as can be ascertained at this distance, to be genuine. I will give you an instance: one day it was reported, upon the capture of some town, that a number of women were assaulted, and that afterward they committed suicide. We immediately tried, through the State Department, to get a confirmation of that or some means of judging whether it was true or not, through our consuls on the spot and in the neighborhood. We could not get any verification of it at all, and in my opinion it never happened. But the very phraseology I am using shows you our embarrassment — I say, in my opinion, it never happened. I don't know. And I wish you gentlemen might coöperate with me not only in trying to get the most exact information obtainable, but also in trying to keep the public from being misled by rumors.

"REPRESENTATIONS" OF FOREIGN GOVERNMENTS

It has been said, among other things, that foreign governments are making representations which constitute a pressure on this Government. Now, that isn't true. They have conveyed to us, in the most informal way possible, the impressions as to the situation on the part of their representatives in the City of Mexico, which, you see, is a very different matter. So that I can say to you that I am in search of the real facts. When we get the facts, it will be possible, I hope, to formulate some definite course of action. Until we get more dependable information, there will be no change in the Administration policy of "hands off." We hold our minds perfectly open to do the right and necessary thing, when we find out what that thing is. I think the Mexican problem is not unsolvable, by any means; I think there is a very good chance for working it out. Instead of growing worse, it is growing better. The newspapers that say that things are pointing to an armed intervention or that suggest military action by European powers are dead wrong. There is hardly a possibility of either. A peaceful solution seems to be getting more practicable every day. One thing I can say definitely: My plans involve absolutely nothing that isn't friendly to Mexico.

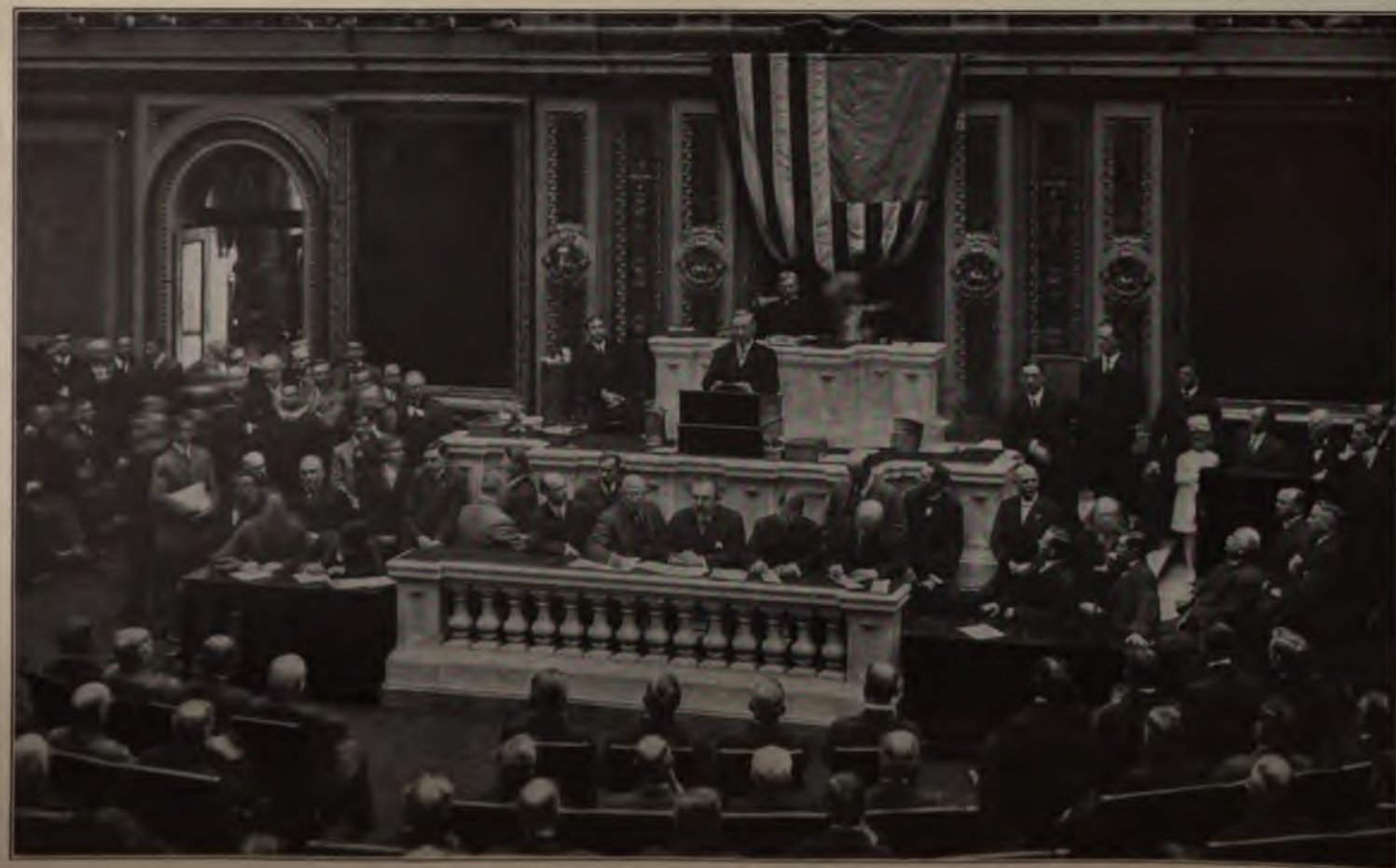
There are plenty of alarming rumors afloat, but you should pay no attention to them. Senator Bacon in the Senate the other day made several statements indicating that the situation was grave. He

said that we are facing an unspeakable danger — that I am facing an emergency greater than any other that has confronted any President in his time here in the Senate — far more serious than the Cuban situation. Of course, you must remember the object with which Senator Bacon was speaking. He was trying to prevent the gentlemen who apparently would like to make the situation a kind that could not be handled peacefully realize that they were playing with elements that they ought not to exasperate — ought not to play with. That was his object. It justified the very strong statement of how serious a mischief they might create if they insisted upon action such as they were suggesting. Then there is a disposition to misinterpret the attitude of Japan. The other day the Captain and a number of officers, I think about fifteen, from the *Idzumo*, the Japanese cruiser that has just arrived, were to go up to Mexico City and present their respects to the Government there, just as the British Admiral did when he arrived — you remember, the British Admiral Craddock; and the German did the same. So there was nothing novel in that or unusual. There are also these yarns about our sending marines to Mexico City. They are nothing but yarns. There isn't a word of truth in them. We have not been advised by Mr. O'Shaughnessy that it was necessary to do anything of the kind; on the contrary, he has advised us that it was not necessary. These things that I entertain myself by reading are inventions. In our dealings with Mexico we shall be open. I never play with my hand under the table. I am perfectly willing to play with the cards face up.

MONROE DOCTRINE STILL STANDS

There is also the much discussed question of the Monroe Doctrine. In our discussions about foreign governments the Monroe Doctrine has not been mentioned one way or the other. There is a good deal of discussion as to what the Monroe Doctrine means, but no doubt. But the Doctrine certainly still stands. I haven't yet heard of its falling.

[In the middle of April came the outrages to the American marines at Tampico and Admiral Mayo's demand for a salute. The long expected Mexican crisis seemed to have arrived; in the minds of most Americans, war now became inevitable. The Government landed troops at Vera Cruz and occupied the city. Again President Wilson is found deprecating any outburst of popular passion — again he seeks the coöperation of the press in calming popular excitement. The following are extracts from his remarks to the Washington correspondents in this great crisis.]



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"I DO NOT PLAY THE GAME WITH MY HANDS UNDER THE TABLE. I AM ALWAYS WILLING TO PLAY WITH THE CARDS FACE UP"

I am going to go to Congress on an occasion when, strictly speaking, I am advised that it is not necessary for me to go. Of course, it is my desire to have their full coöperation both of thought and of purpose, and I am very glad to take it to them. But, as I understand my powers as President, I could take the steps necessary in a matter of this sort, because it would fall very short of a declaration of war, which lies only with Congress. Do not get the impression that there is about to be war with the United States and Mexico. That isn't the outlook at present at all. In the first place, in no conceivable circumstances would we fight the people of Mexico. We are their friend and we want to help them, in every way that we can, to recover their rights and their Government and their laws; and for the present I am going to Congress to present a special situation and seek their approval to meet that special situation. It is only an issue between this Government and a person calling himself the provisional President of Mexico, whose right to call himself such we never have recognized in any way. So that I had a feeling of uneasiness as I read the papers this morning, as if the country were getting on fire with war enthusiasm. I have no enthusiasm for war; I have an enthusiasm for justice and for the dignity of the United States, but not for war. And this need not eventuate into war if we handle it with firmness and promptness.

It is possible to deal with a dictator with the navy without precipitating war. It has been done. You have only to search the precedents to find it has been done scores of times. For example, on one occasion the United States, perhaps with unnecessary emphasis, almost wiped out the town of Graytown just on one occasion of this sort. Nor is the seizure of a customs house or of a port equivalent to war or a declaration of war. You may remember that ports have been seized as security for the payment of débts without the act being taken as a declaration of war at all. The giving of passports to a chargé, as Huerta has done, does not necessarily mean war. That is an act which always precedes war, but war does not always follow it.

I have not lost my patience. I think it is an act of weakness to lose your patience, particularly when you are strong enough to do what you please when it is the right time to do it. I just saw this happening. If these incidents went on, they might go from bad to worse and lead to something which would bring about a state of conflict; and I thought it was wise, in the interest of peace, to cut the series of such incidents off at an early stage. That is the spirit in which I am acting. What, then, is the purpose of our naval operation

in Mexico? It is not, as you gentlemen seem to think — not this act, that is — the elimination of Huerta. Its purpose is to compel the recognition of the dignity of the United States. That is all we want — a full recognition of that dignity and such a recognition as will constitute a guarantee that this sort of thing does not happen any more. As I have said, I have no enthusiasm for war; but I have an enthusiasm for the dignity of the United States.

II

QUESTION OF PANAMA TOLLS

[President Wilson has discussed with the correspondents another question closely affecting our foreign policy — that of the Panama tolls. The following extracts from President Wilson's informal talks make clear his attitude on this fundumental question.]

I would like to correct what is apparently a general impression — that there is anything critical in the foreign affairs of the Government, as regards the Panama tolls question or anything else. The statements in the newspapers to this effect do great harm. The foreign policy of the Government is the one field in which, if you will permit me to say so, you gentlemen ought not to speculate. The rumors that I have seen in the last couple of days are absolutely unfounded, and they are embarrassing the Government; that is the long and short of it. And I feel the thing very keenly. I do not think that the newspapers of the country have the right to embarrass their own country in the settlement of matters which have to be handled with delicacy and candor. I have seen it published, in one or two papers at any rate, that I as the Executive was considering certain things that had never come into my mind as courses of action. Now, if in dealing with the representative of the government concerned I make an entirely different proposition and let it be inferred that the other course never occurred to me, there is some danger that I be regarded as disingenuous, that I am not saying what I really have up my sleeve, when I have nothing up my sleeve. It is a very serious disservice to the country to embarrass the foreign policy of the Government in that way. I say that without any feeling of criticism but in order that you may know how seriously these things affect public policy. With regard to domestic matters, it is a very different question, because we are all on the inside and we can all exchange suggestions as to possible courses of action. But that is not true with regard to foreign policy. For example, you take the Japanese question or a

German question or a Russian question or an Italian or French question, and there is no such interchange of editorial and other knowledge between us and them as there is, for instance, between us and England. A great deal more of what is being thought in the United States — because it is thought in English — is known in England than is known in the other countries. I can illustrate it in this way: I once said at a dinner when we were welcoming to New York one of the representatives of the English Government that I doubted whether it was a very valid argument to say that our cordial relations with England were based chiefly upon our speaking the same language, because when, for example, a French newspaper was disagreeable about the United States most of us did not know about it, but that we all read the *Saturday Review*, and that, therefore, we knew the uncomfortable opinions which were entertained about us in some quarters of England very much more than we did the uncomfortable opinions of us in foreign countries. Of course, I said that in entire pleasantry, because I knew one of the editors of the *Saturday Review* to be present, but I meant, and mean now, the point seriously. Things that affect foreign countries are telegraphed; the main body of our opinion goes unnoted amongst them: and, therefore, a vast deal of damage can be done by such speculations as I have seen in one or two papers, during the last day or two, since that conference at the White House with the Foreign Relations Committee. I take it that the newspapers do not want to render it impossible for me to confer with the Foreign Relations Committee; but it will be rendered impossible if, every time I confer with them, there is mischief to pay somewhere.

As I told you gentlemen with the utmost frankness after that conference, there is no crisis that I know of anywhere unless you consider the Mexican situation as a perpetual crisis. There is no new phase or situation.

WE MUST LIVE UP TO OUR BARGAINS

I earnestly hope that the law giving American coastwise vessels free passage through the Panama Canal will be repealed. We have made a bargain and we must live up to it. I do not take this stand, however, because the British Government is exercising pressure upon me. It is not exercising any pressure at all. Outside of the British protest there has been no exchange of communications between this Government and Great Britian regarding the tolls matter. The exchange of notes between the two governments occurred before I became President, and since then there has been nothing except an

don't need the votes, it is a crime, and I don't need them." I don't know whether you can draw the moral or not.

THE DEMOCRATIC PLATFORM AND THE TOLLS

Then there is the question of the Democratic platform. The attempt to make trouble on this point — to remove the question from the high plane of principle — reminds me of another story I used to be fond of telling of a very effective debater — I need not say where this happened — who sent a challenge down into a county very hostile to him to debate. The people down there did not like the job very much, but they put up the man they liked best and who was generally put up on such occasions, a great big husky fellow whom they all called "Tom." The challenger was given the first hour of the two hours allotted to the debate, and he hadn't got more than half way through his speech when it became evident that he was convincing the audience; and one of Tom's partisans in the back of the room cried out, "Tom, Tom, call him a liar and make it a fight." That is the stage this has reached. Still I am not going to fight; I don't have to.

As to the platform: I think that a platform on such a subject as that is necessarily related to the circumstances, and the circumstances arise all over the world as well as in the United States. In other words, when there are elements which we cannot control in the situation, only those elements which we can control bind us, and I think that a change of circumstance changes the attitude of the Government and will change the attitude of the country toward it. The attitude of Europe on the question will be involved, the whole international situation and the point of view of the governments, and everything of that sort.

If you will examine the platform, you will find that there are two planks in it, one directly, as all other declarations of a party have been, against subsidies, direct or indirect, or any additional burden laid upon the people for the sake of encouraging shipping; and the other is with regard to tolls. Now, it ought not to be difficult to determine which should take precedence — a long established principle of a party or what now seems to be an exception from that long established practice. That is perfectly plain sailing to my mind; I don't see any escape from it. Free tolls certainly is a subsidy; and as between the principle of the party and a policy which violates that immemorial principle there ought not to be much difficulty in choosing.

THE KAISER

ɔRD OF EUROPE, AS PORTRAYED BY HIMSELF IN HIS PUBLIC UTTERANCES
.AST QUARTER CENTURY—A RULER "RESPONSIBLE TO GOD ALONE"

(Illustrated by photographs chiefly from Brown Brothers, New York)

result of my reading of history, I have pledged myself never to strive after an empty world-rule. For what has become of the so-called world-ılexander the Great, Napoleon, : heroes of war swam in blood, ıind them subjugated nations on the first opportunity and ir empires to ruin. The world-t I have dreamed of would ıis: that, above all, the newly-man Empire should on every he most absolute confidence as honorable, peaceful neighbor, history should one day tell of world-empire, or of a Hohen-d-rule, it should not have been ɔnquests with the sword, but tual trust of nations striving same goal."

ıe fact that he pointed out the ıe great conquerors, the Kaiser lain that Germany's world-ations were not to be balked -at-any-price policy. At the f the warship *Wittelsbach*, he "The ocean teaches us that and on its most distant shores :ision can any longer be taken ·many and *without the German* do not think that it was in ow themselves to be excluded 'eign affairs that, thirty years ɔple, *led by their princes*, con-shed their blood. Were the :ople to let themselves be ;, it would be, and forever, the r world-power; and I do not that shall ever cease. To ɔrder to prevent it, the suitable eed be extreme means, is my ıy highest privilege."

ut his speeches three ideas appear consistently and continuously: the ambition for world-power, for ships and a navy to defend them; the belief in the German army by its preponderance and preparedness as the guarantor of Europe's peace; and the divine right and the infallibility of the Hohenzollerns.

WORLD-POWER

Soon after ascending the throne the Kaiser said:

"The ancestor for whom I have the most liking, and who always shone before me as an example in my youth, was the Great Elector." He so admired this particular ancestor because the Great Elector was the first Hohenzollern who saw the importance of promoting trade and industry, acquiring colonies, shipping by which to trade with them, and a navy to defend the shipping. This policy, which languished for a long time, has been thoroughly revised and enlarged by William II. As far back as 1896 the Kaiser himself said at Berlin:

"The German Empire becomes a world-empire. Everywhere in the farthest parts of the earth live thousands of our fellow-countrymen. German subjects, German knowledge, German industry cross the ocean. The value of German goods on the seas amounts to thousands of millions of marks. On you, gentlemen, devolves the serious duty of helping me to knit firmly this greater German Empire to the Empire at home."

At Aix, in 1902, in comparing the Holy Roman Empire with the present German Empire, he said:

"Now another Empire has arisen. The German people has once more an Emperor of its own choice, with the sword on the field of battle has the crown been won, and the imperial flag flutters high in the breeze.

But the tasks of the new Empire are different: confined within its borders, it has to steel itself anew for the work it has to do, and which it could not achieve in the Middle Ages. We have to live so that the Empire, still young, becomes from year to year stronger in itself, while confidence in it strengthens on all sides. The powerful German army guarantees the peace of Europe. In accord with the German character we confine ourselves externally in order to be unconfined internally. Far stretches our speech over the ocean, far the flight of our science and exploration; no work in the domain of new discovery, no scientific idea but is first tested by us and then adopted by other nations. This is the world-rule the German spirit strives for."

Despite the guarantee of peace which the power of the German army offered, William II did not neglect to warn his own people and others that peace might be disturbed. He said to the chief burgomaster of Karlsruhe in 1904, when Japan and Russia were at war:

"I hope our peace will not be disturbed and that the events that are now happening will open our eyes, steel our courage, and find us united, if it should be necessary for us to intervene in world-policy."

"Imperial power means sea power and sea power and imperial power are dependent on each other." . . . "Our future lies on the water." . . . "The trident should be in our hand." . . . "We stand under the star of commerce." . . . "We demand our place in the sun."

These phrases contain the essence of the doctrine which the Emperor enlarged in many places as, for example, at Hamburg in 1899:

"A strong German fleet," he said, "is a thing of which we stand in bitter need." And he continued: "In Hamburg especially one can understand how necessary is a powerful protection for German interests abroad. If we look around us we see how greatly the aspect of the world has altered in recent years. Old-world empires pass away and new ones begin to arise. Nations suddenly appear before the peoples and compete with them, nations of whom a little before the ordinary man had been hardly aware. Prin which bring about radical changes domain of international relations as as in the political economy of the pe and which in old times took hundre years to ripen, come to maturity in months. The result is that the tas our German Empire and people grown to enormous proportions and mand of me and my Government and great efforts, which can then crowned with success when, united decided, without respect to party, mans stand behind us. Our people over, must resolve to make some sac Above all they must put aside endeavor to seek the excellent throu ever more sharply contrasted party tions. They must cease to put above the welfare of the whole. must put a curb on their ancient herited weakness — to subject ever to the most unlicensed criticism they must stop at the point when most vital interests become con For it is precisely these political sins revenge themselves so deeply on interests and our fleet. Had the str ening of the fleet not been refused ing the past eight years of my gover notwithstanding all appeals and w — and not without contumely and for my person — how differently co not have promoted our growing tra our interests beyond the sea!"

When the Kaiser ascended the the German fleet amounted to pra nothing. Despite the Kaiser's ever advocacy, the Reichstag would no large naval appropriations. The navy really began with the appointm Admiral von Tirpitz as Minister of in 1899. Now the German Navy is only to that of Great Britain. Its c has been the main bone of content tween the English and German These relations the Kaiser discus 1908, in his famous *Daily Mail* inte as follows:

"You English," he said, "are mad mad as March hares. What has con you that you are so completely give to suspicions quite unworthy of a nation? What more can I do t

THE KAISER'S YOUTH

R LEFT: ONE YEAR OLD; RIGHT: EIGHT YEARS OLD; CENTRE: TEN YEARS OLD; LOWER CENTRE: FOURTEEN YEARS OLD; LEFT: TWENTY YEARS OLD; RIGHT: TWENTY-TWO YEARS OLD

IN HIS CORONATION YEAR, 1888 — AND AFTER FOUR YEARS OF RULE

"WE BELONG TOGETHER, I AND THE ARMY; THUS WE WERE BORN FOR EACH OTHER, AND THUS WE W ACT TOGETHER NO MATTER WHETHER GOD WILLS PEACE OR STORM." — SPEECH TO THE ARMY ON THE DAY HIS ACCESSION

have done? I declared with all the emphasis at my command, in my speech at Guildhall, that my heart is set upon peace, and that it is one of my dearest wishe live on the best of terms with Engla Have I ever been false to my wo

IN 1904

"I HOPE THAT OUR SPEECH WILL NOT BE DISTURBED AND THAT THE EVENTS THAT ARE NOW HAPPENING WILL OPEN OUR EYES, STEEL OUR COURAGE, AND FIND US UNITED, IF IT SHOULD BE NECESSARY FOR US TO INTERVENE IN WORLD-POLICY." — AT KARLSRUHE IN 1904

IN 1908

"GERMANY IS A YOUNG AND GROWING EMPIRE, HAS A WORLD-WIDE COMMERCE WHICH IS RAP EXPANDING, AND TO WHICH THE LEGITIMATE A TION OF PATRIOTIC GERMANS REFUSES TO ASSIGN BOUNDS. GERMANY MUST PROTECT THAT COMMER — IN THE "DAILY MAIL" INTERVIEW, 1908

Falsehood and prevarication are alien to my nature. My actions ought to speak for themselves, but you listen not to them but to those who misinterpret and distort them. That is a personal insult which I feel and resent. To be forever misjudged, to have my repeated offers of friendship weighed and scrutinized with jealous, mistrustful eyes, taxes my patience severely. I have said time after time that I am a friend of England, and your Press — or at least a considerable section of it — bids the people of England refuse my proffered hand, and insinuates that the other holds a dagger. How can I convince a nation against its will?"

"I repeat," continued His Majesty, "that I am the friend of England, but you make things difficult for me. My task is not of the easiest. The prevailing sentiment among large sections of the middle and lower classes of my own people is not friendly to England. I am, therefore, so to speak, in a minority in my own land, but it is a minority of the best elements, just as it is in England with respect to Germany. That is another reason why I resent your refusal to accept my pledged word that I am the friend of England. I strive without ceasing to improve relations, and you retort that I am your arch-enemy. You make it very hard for me. Why is it?"

A RECENT PICTURE

"MY FIRST AND LAST CARE IS FOR MY FIGHTING FORCES ON LAND AND SEA." — FROM THE KAISER'S SPEECH AT HIS SILVER WEDDING ANNIVERSARY

Thereupon the interviewer ventured to remind His Majesty that not England alone but the whole of Europe had viewed with disapproval the action of Germany in allowing the German consul to return from Tangier to Fez, and in anticipating the joint action of France and Spain by suggesting to the Powers that the time had come for Europe to recognize Mulai Hafid as the new Sultan of Morocco.

His Majesty made a gesture of impatience. "Yes," he said, "that is an excellent example of the way in which German action is misrepresented. First, then, as regards the journey of Dr. Vassel. The German Government, in sending Dr. Vassel back to his post at Fez, was only guided by the wish that he should look after the private interests of German subjects in that city, who cried for help and protection after the long absence of a consular representative. And why not send him? Are those who charge Germany with having stolen a march on the other Powers aware that the French consular representative had already been in Fez for several months when Dr. Vassel set out? Then, as to the recognition of Mulai Hafid. The Press of Europe has complained with much acerbity that Germany ought not to have suggested his recognition

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THE KAISER AND KING ALBERT OF BELGIUM

KING EDWARD VII OF ENGLAND AND THE KAISER

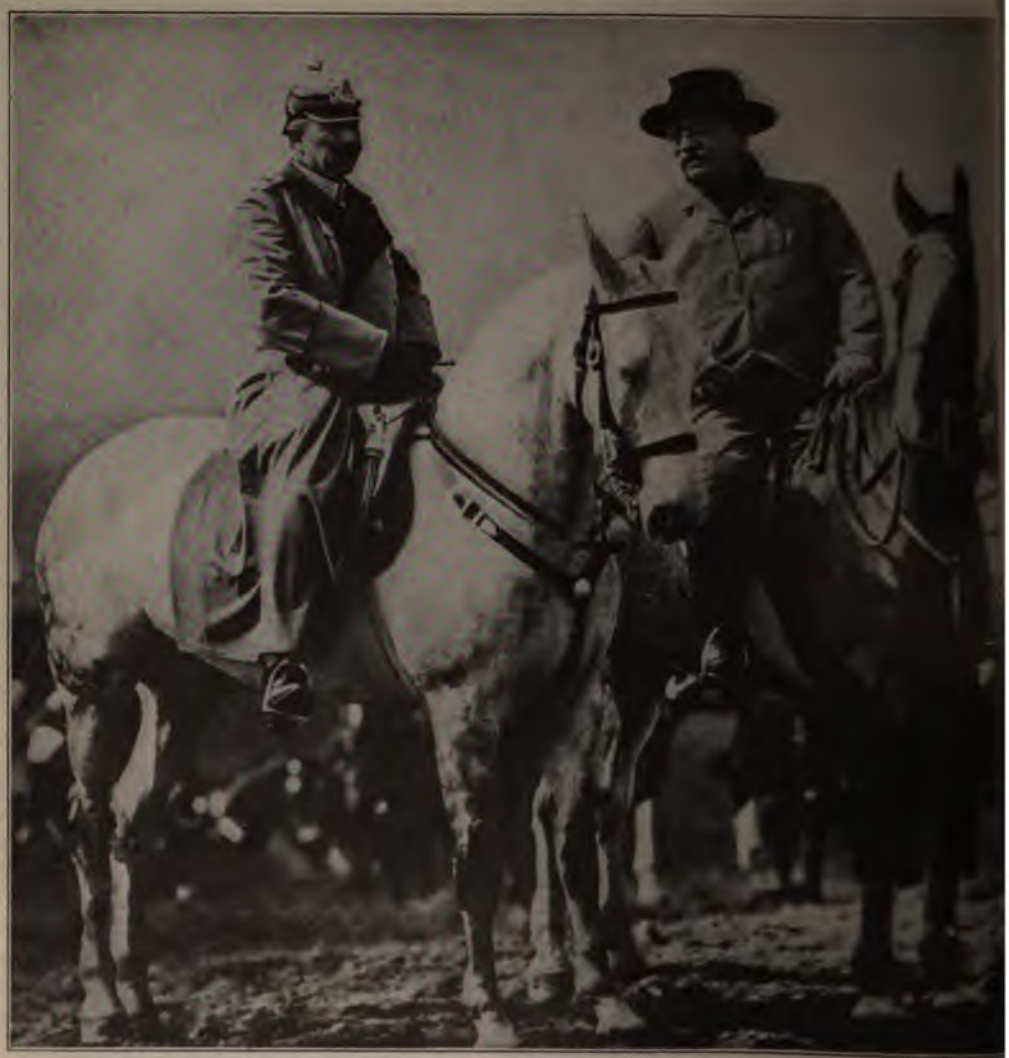
MEETING THE ARCHDUKE FRANCIS FERDINAND

HIS PARTICULAR FRIEND, WHOSE ASSASSINATION LED TO THE AUSTRIAN DEMANDS ON SERVIA WHICH PRECIPITATED THE WAR

until he had notified to Europe his full acceptance of the Act of Algeciras, as being binding upon him as Sultan of Morocco and successor of his brother. My answer is that Mulai Hafid notified the Powers to that effect weeks ago, before the decisive battle was fought. He sent, as far back as the middle of last July, an identical communication to the governments of Germany, France, and Great Britain, containing an explicit acknowledgment that he was prepared to recognize all the obligations toward Europe which were incurred by Abdul Aziz during his Sultanate. The German Government interpreted that communication as a final

THE KAISER AND THE CZAR

THE TWO CHIEF EXPONENTS OF PERSONAL RULE IN A LIBERAL AGE



THE KAISER AND COLONEL ROOSEVELT AT A MILITARY REVIEW

"THE SOLDIER AND THE ARMY, NOT PARLIAMENTARY MAJORITIES AND DECISIONS, HAVE WELDED TOGETH THE GERMAN EMPIRE. MY CONFIDENCE IS IN THE ARMY . . . THESE ARE THE GENTLEMEN ON WHO CAN RELY."—FROM A SPEECH OF THE KAISER TO HIS OFFICERS

and authoritative expression of Mulai Hafid's intentions, and therefore it considered that there was no reason to wait until he had sent a second communication before recognizing him as the *de facto* Sultan of Morocco, who had succeeded to his brother's throne by right of victory in the field."

The interviewer suggested to His Majesty that an important and influential section of the German Press had placed a very different interpretation upon the action of the German Government, and, in fact, had given it their effusive approbation precisely because they saw in i strong act instead of mere words, an decisive indication that Germany was o more about to intervene in the shapin events in Morocco. "There are misch makers," replied the Emperor, "in b countries. I will not attempt to weigh t relative capacity for misrepresentati But the facts are as I have stated. Th has been nothing in Germany's recent act with regard to Morocco which runs c trary to the explicit declaration of my l of peace which I made both at Guildh and in my latest speech at Strassburg.

THE KAISER AND HIS COUSIN, KING GEORGE

"YOU ENGLISH ARE MAD, MAD, MAD AS MARCH HARES. WHAT HAS COME OVER YOU THAT YOU ARE SO COMPLETELY GIVEN OVER TO SUSPICION QUITE UNWORTHY OF A GREAT NATION?"—FROM THE KAISER'S "DAILY MAIL" INTERVIEW

THE KAISER AND HIS UNCLE, KING EDWARD VII

USUALLY CREDITED IN A LARGE MEASURE WITH THE FORMATION OF THE ENTENTE CORDIALE BETWEEN ENGLAND, FRANCE, AND RUSSIA

THE KAISER'S GRANDCHILDREN
IN A MINIATURE SENTRY BOX

THE KAISER'S DAUGHTER
IN THE UNIFORM OF HER REGIMENT

THE HEIR TO THE HOHENZOLLERN DYNASTY

THE KAISER AS A HIGHLANDER

lis Majesty then reverted to the subject ermost in his mind — his proved friend- for England. "I have referred," he , "to the speeches in which I have done that a sovereign can to proclaim my l will. But as actions speak louder n words, let me also refer to my acts. s commonly believed in England that ughout the South African War Ger- ny was hostile to her. German opinion oubtedly was hostile — bitterly hostile. Press was hostile; private opinion hostile. But what of official Ger- ny? Let my critics ask themselves t brought to a sudden stop, and, indeed, absolute collapse, the European tour he Boer delegates who were striving obtain European intervention? They were fêted in Holland; France gave them a rapturous welcome. They wished to come to Berlin, where the German people would have crowned them with flowers. But when they asked me to receive them — I refused. The agitation immediately died away, and the delegation returned empty-handed. Was that, I ask, the action of a secret enemy?

"Again, when the struggle was at its height, the German Government was invited by the governments of France and Russia to join with them in calling upon England to put an end to the war. The moment had come, they said, not only to save the Boer republics, but also to humiliate England to the dust. What was my reply? I said that so far from Germany joining in any concerted European action to put pressure upon England and bring about her downfall, Germany would always keep aloof from politics that could

AS HIS ANCESTOR, FREDERICK THE GREAT

bring her into complications with a Sea Power like England. Posterity will one day read the exact terms of the telegram — now in the archives of Windsor Castle — in which I informed the Sovereign of England of the answer I had returned to the Powers which then sought to compass her fall. Englishmen who now insult me by doubting my word should know what were my actions in the hour of their adversity.

"Nor was that all. Just at the time of your Black Week, in the December of 1899, when disasters followed one another in rapid succession, I received a letter from Queen Victoria, my revered grandmother, written in sorrow and affliction, and bearing manifest traces of the anxieties which were preying upon her mind and health. I at once returned a sympathetic reply. Nay, I did more. I bade one of my officers procure for me as exact

ALL THE GERMAN KAISERS

WILLIAM I, FOUNDER OF THE EMPIRE (SEATED) SON, FREDERICK III, ON THE LEFT, HIS GRANDSON WILLIAM II, ON THE RIGHT, AND THE PRESENT CROWN PRINCE AS A BABY

THE WITHERED ARM

DESPITE WHICH THE KAISER RIDES, SHOOTS SWIMS, AND ROWS

an account as he could obtain of the number of combatants in South Africa on both sides, and of the actual position of the opposing forces. With the figures before me, I worked out what I considered to be the best plan of campaign under the circumstances, and submitted it to my General Staff for their criticism. Then I dispatched it to England, and that document, likewise, is among the state papers at Windsor Castle, awaiting the serene impartial verdict of history. And, as a matter of curious coincidence, let me add that the plan which I formulated ran very much on the same lines as that which was actually adopted by Lord Roberts and carried by him into successful operation. Was that, I repeat, the act of one who wished England ill? Let Englishmen be just and say!

THE KAISER'S CASTLE OF STOLZENFELS ON THE RHINE

AFTER THE HUNT

THE IMPERIAL PALACE IN BERLIN

WITH THE DUKE OF CONNAUGHT

OUT OF UNIFORM

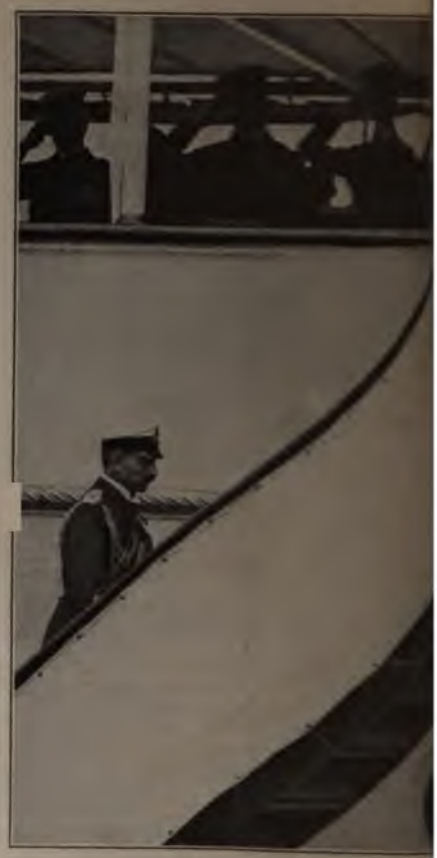
THE KAISER'S ITALIAN PALACE AT CORFU

, you will say, what of the German Surely that is a menace to England! whom but England are my squad- ing prepared? If England is not minds of those Germans who are creating a powerful fleet, why is ny asked to consent to such new and burdens of taxation? My answer . Germany is a young and growing . She has a world-wide commerce, s rapidly expanding, and to which itimate ambition of patriotic Ger- efuses to assign any bounds. Ger- nust have a powerful fleet to protect mmerce and her manifold interests the most distant seas. She expects nterests to go on growing, and she e able to champion them manfully quarter of the globe. Germany ahead. Her horizons stretch far She must be prepared for any alities in the Far East. Who can what may take place in the Pacific days to come — days not so distant e believe, but days, at any rate, ich all European Powers with Far interests ought steadily to pre- Look at the accomplished rise of think of the possible national ing of China; and then judge of the problems of the Pacific. Only Powers which have great navies will

AT CORFU

DROPPING THE PILOT

SIR JOHN TENNIEL'S FAMOUS CARTOON IN "PUNCH," WHICH WAS PROMPTED BY THE KAISER'S DISMISSAL OF BISMARCK IN MARCH, 1890



THE NEW PILOT

"CONSIDERING MYSELF AS AN INSTRUME LORD, WITHOUT BEING MISLED BY THE V OPINIONS OF THE DAY, I GO MY WAY"

be listened to with respect when the future of the Pacific comes to be solved; and if for that reason only Germany must have a powerful fleet. It may even be that England herself will be glad that Germany has a fleet when they speak together on the same side in the great debates of the future."

The Chancellor von Bülow admitted in the Reichstag that the Kaiser's version of the war plan was not quite accurate, but there is no doubt that the German people were bitterly hostile to England, a hostility which was not at all lessened when English warships seized German ships along the African coast. England apologized for the act, but that did not satisfy German feeling, and when Admiral von Tirpitz presented a bigger naval programme in 1900 than had ever been presented before, the hitherto pa ious Reichstag suddenly became g toward the navy. The new law p for the first time a high-seas batt and the accompanying memo stated:

"To protect Germany's sea tr colonies, in the existing circum there is only one means: Germa have a battle fleet so strong that, the adversary with the greatest se a war against it would involve such as to imperil its position in the w

As much as the Kaiser loves h the army is still more dear to him. soldier and the army," he said, paraphrasing Bismarck's famous and iron" epigram, "not parlia majorities and decisions, have together the German Empire. M

; in the army — as my grandfather
Coblenz: 'These are the gentlemen
ı I can rely.'"
: completion of the first ten years
gn he addressed his bodyguards:
most important legacy left me by
dfather and father is the army,
joy and pride have I accepted it.
rmy my first decree was issued on
g the throne. To the army I now
dress myself on entering upon the
ecennium of my reign. . . .
ly, I believe, has so trying a time
ver the head of a ruler as over mine
ıese last ten years — I, who saw
lfather and father die, to my deep
within so short a space of time.
ıve anxiety I placed the crown
head. Everywhere I met doubt,
whole world misjudged me. But
confidence in me; but one be-
me — that was the army. And
pon the army, and trusting in God,
my reign, knowing well that the
he main tower of strength for my
the main pillar supporting the
throne, to which God in His
ıad called me."
ıuary 1, 1900, the Kaiser addressed
nbled corps of officers:
first day of the new century sees
' — that is, our nation in arms —
around their banners, bending the
the Lord of hosts. And truly, if
have special cause to bend down
od, it is our army.
ınce at our flags here suffices for
on, for they embody our history.
the dawn of the past century
ırmy?
glorious soldiers of Frederick the
d fallen asleep on their laurels,
n the trivial details of a senseless,
d drill led by superannuated,
and unwarlike generals; their
ıo longer used to serious work,
ıerated by luxury, sloth, and blind
ication. In a word, the army no
ıfficed for its task. It had for-
t. Severe was the punishment
t to it by Heaven, a punishment
ikewise chastised our people.
into the dust were we. Fred-
'ame paled, and his glorious
banners were broken. In the seven long years of our hard servitude God taught our people to gather new strength. Under the iron pressure of the insolent conqueror's heel, our people in bitter travail of spirit conceived the high thought that it is the greatest honor to devote life and property in military service to the fatherland.

"My great-grandfather gave form and substance to this conception. New laurels crowned the new-born army and its banners. But it was through my grandfather, our great, our dead Emperor, that general military service became a full, a living reality. In quiet, persistent labor he drafted his system of reorganization, out of which, despite all opposition which misapprehension caused, grew our army of to-day. Victorious campaigns, however, crowned his labors in unexpected fulness.

"His spirit pervaded the rank and file of his armies, and his trust in God led them on to matchless victories. With this, his own creation, he at length drew together again the tribes of Germany, and he gave us back longed-for German unity. To him we owe it that through this army the German Empire, honored by all, once more occupies its destined and appropriate position in the council of nations. It is your part, gentlemen, to manifest during the new century the old qualities by which our sires have made the army great and invincible — simplicity and plainness in your style of living, absolute devotion to the service of the King, fullest utilization of all your strength and gifts, both of body and soul, in ceaseless toil for the development and drilling of our troops.

"And as my grandfather did for the army, so, too, I mean to continue for my navy, in spite of all discouragement and misconceptions, the work of development, in order that the navy shall be, side by side with my army, of equal power and strength, and thus achieve for the German Empire at home and abroad that position which we as yet have not attained.

"Jointly with both I hope to be one day in condition, trusting fully in the aid of God, to realize the saying of Frederick William I: 'If one wishes to decide something in this world, it is not the pen alone

that will do it if unsupported by the power of the sword.'"

Even on his many peace trips from capital to capital, the Kaiser almost always gives as an example of the friendliness between Germany and the country in which he is visiting, some joint action of their armies. In England, for example, he reminds his hearers:

"At Malplaquet and Waterloo, Prussian and British blood has been spilled in a common cause."

In Russia:

"We are carried back to the days when my grandfather, now resting in God, but then a young officer, received before the enemy, on the battlefield, the Order of St. George, and won in the rain of bullets the chieftaincy of the Kalnga Regiment (conferred by Czar Alexander I on William I of Prussia). I remind you of these facts in order to drink to the glorious and joint reminiscences and traditions of the Russian and the Prussian armies. I drink to those who, in patriotic and heroic defence of their country, fought at Borodino, who with us bled at the victorious battles of Areis-sur-Aube and Brienne. I drink to the brave defenders of Sebastopol and the dauntless fighters of Plevna."

On the Kaiser's famous visit to Palestine in 1898 he made a speech at the tomb of the Sultan Saladin in which appeared some sentences which caused much comment then, and may be well remembered now.

"Deeply moved by this imposing spectacle, and likewise by the consciousness of standing on the spot where held sway one of the most chivalrous rulers of all times, the great Sultan Saladin, a knight *sans peur et sans réproche*, who often taught his adversaries the right conception of knighthood, I seize with joy the opportunity to render thanks, above all, to the Sultan Abdul Hamid for his hospitality. May the Sultan rest assured, and also the three hundred million Mohammedans scattered over the globe and revering him, their caliph, that the German Emperor will be and remain at all times their friend."

At another time in Austria he said:

"My people and my army keep steadfast and true to the federated compact concluded between us, and the army is fully conscious
the peace and it
it must main
shoulder to s
Austro-Hungari
be the will of

And again, in
his action two
Austria-Hungar
Bosnia and He
protest, as "the
his stand in s
moment by the
sovereign."

At his silve
1906, he said ag
is for my fighti

D

In March,
Kaiser's to the
curred this pass

"I look upo
handed on to
ferred upon me
written in the
this heritage, fo
called upon to
try to interfere

A few month
sentiments in t

"It is a tradi
the Hohenzoll
appointed by
the people, who
their well-being
their material

Four years
ancient crowni
kings, William

"The success
him who *of bi*
prince in Prussi
as his great an
King (of Prussi
with me,' and a
Elector) gave
of a rock of br
perial grandfat
by God's grace.

Again, in 189
his speech abou

"He left Co
as the selected

garded himself to be. For us all, e all for us princes, he raised once ft and lent lustrous beams to a ch we should hold high and holy the kingship by God's grace, the with its onerous duties, its never-ver-continuing trouble and labor, :arful responsibility to the Creator om which no human being, no no parliament, no people can e prince."

within the last few years at rg he reiterated his belief:

my grandfather," he said, "placed, n right, the crown of the Kings a on his head, once again laying on the fact that it was conferred by the grace of God alone, not ment, by meetings of the people, ular decisions; and that he con-imself the chosen instrument of nd as such performed his duties and as ruler. Considering my-instrument of the Lord, without led by the views and opinions of I go my way, which is devoted d alone to the prosperity and development of our Fatherland."

aiser is a very devout Christian. impresses it on his army that Christianity no man can be a good Whenever he is on board his e *Hohenzollern*, on Sunday he services himself. In 1900, when were in China at the time of the rising, he preached the following

2 Mos. 17th chapt. 11th verse: ng as Moses held up his hands, srael prevailed; but when he low-ands, Amalek prevailed. Amen."

posing picture it is which to-day's ents to our souls. There is king its way through the desert, om the Red Sea and on toward nai. But of a sudden the heathen people stop their progress, and ensues. Joshua leads the young srael into the fray; swords rattle , and a hotly contested, bloody ets in, down in the vale of Rephi-t see, while the battle moves d thither, those devout men of es, Aaron, and Hur, climb up the mountain-side and stretch out their hands toward Heaven; they pray. Below in the valley the warring throng; up on the mountain the praying three. That is the warlike picture of our text.

"And who to-day does not understand what lesson it conveys? For again the pagan spirit of Amalek has stirred in far Asia, and with great cunning and power, with fire and murder, they seek to hinder the triumphal march of Christian morals, of Christian faith, of European commerce and education. And again God has ordered: 'Choose men; go forth and fight against Amalek!' A grim, a terrible struggle has begun. Already many of our brothers there are in the combat; many more are now on their way to the hostile coasts. You have seen them, those thousands who, answering the call, 'Volunteers to the front! Who will protect the Empire?' are now gathering, and who will soon join in the fight with flying banners.

"But we, remaining behind here at home, restricted by other and sacred duties — do we not hear the words of God, spoken to us, saying: 'Go up on the mountain-side! Lift up thine hands to the Most High!' The prayer of the just accomplishes much if it be but said with all our strength and faith!

"Well, then. Far away the ranks of warriors, and here at home the ranks of the praying — let that also be the holy battle-picture for to-day! Let this peaceful morning hour remind us of the sacred duty of prayer, of the sacred power of prayer.

"The sacred duty of prayer.

"Certainly it is an inspiriting moment when a ship heaves anchor with a youthful crew on board! Have you not seen the eyes of the young warriors shining? Have you not heard their thousand-voiced hurrah?

"But when the coasts of our native land dwindle and vanish, when the ship enters the torrid heat of the Red Sea, or when she plunges into the mighty waves of the ocean, how often does enthusiasm vanish, too, and how often does strength depart!

"Certainly an inspiriting moment when, after a long journey, are seen, far in the distance, the straight lines of the German forts, and the black-white-red flag of the German colony becomes visible, and when

brothers-in-arms are awaiting your arrival ashore, shouting welcome in the mother-tongue! But later on, when begin endless marches under a fiery sun, and interminable nights, camping out in the rain, how easily then joy and courage ooze away!

"Certainly a longed-for moment, that in which the drum beats to storm and the trumpets shriek to attack, when the order is shouted, 'On upon the enemy!'

"But when, in the midst of thundering cannon and in the midst of sputtering, screaming shells your comrades are mowed down to right and left, and when the enemy's batteries will not be silenced, how often even a brave heart begins to tremble!

"Christians! To enable your brothers out there to remain of joyful heart, to persist in their duty even when it is hardest, not to lose courage even in the greatest danger, it needs more than ammunition and good weapons, more than bravery and enthusiasm — it needs approval and encouragement from on high, else they cannot achieve victory. And this heavenly world can be unlocked solely by prayer. Prayer is the golden key to the treasure-chamber of our God. But whoever has it has also the promise that he who prays will also receive.

"Or, indeed, are we to let our hands lie idly in our laps? Woe to us if we are to remain idle and impassive while they are doing their hard, their bloody tasks! Woe to us if we are to be but curious spectators behind the bars of the great arena while they struggle tensely in the grip of death! That were the spirit of Cain, saying cruelly, 'Am I my brother's keeper?' That were treachery toward our brave brothers who are risking their lives!

"No — thrice no! We will not only send out battalions of warriors. No! We will also aid them by a holy band of praying allies.

"And how much, how many things, we have to ask God for our brothers going into the field of battle! They are to be the strong arm with which to punish the assassins. They are to be the mailed fist with which to set aright the murderous disorder. Their sword is to fight for our holiest treasures.

"Let us, therefore, accompany them with our prayers upon the deep sea, upon their weary marches, into the thunder of battle, and into the quiet of the hospital we will ask God, our Lord, to let t main strong and manful in their d that they will fight the foe heroica undauntedly, that they will bea wounds bravely and without com and God will give a blessed end t who fall under fire, and will reward t in short, He will make heroes of o riors, and conquerors of these hero will lead them home again into the their fathers, the laurel wreath their helmets, and the medal of ho their breasts.

"The sacred power of prayer.

"Or do we not believe in the sacred of prayer? Well, then, what says o 'As long as Moses held up his hands ing, Israel prevailed!' The fervent p of Moses made the swords of the enem enabled his men to penetrate the ranks like a phalanx, thus causing t break and run, and pinned victory flying banners of Israel. And if the p of Moses accomplished this, is it thought that our prayers will prov avail? God has not taken back a syllable from His promises. I prayer can throw even to-day the banner into the dust and plant t upon the walls.

"And Moses was not the only o prayer was heeded. Look, up heights of Sodom is Abraham, in with his God, and with his prayer Lot from the burning city. Shoul be impossible for our prayers our fighting comrades from the of battle?

"Look again, and in Jerusaler see the young Christian communit knees. Their leader, their fath prisoner in jail. Yet with thei they summon the angel of God and he leads forth Peter, unscathe

"Are we, then, to suppose that c will not be potent enough to op the doors for those in need, for oners, for those pursued, and to their side a guardian angel?

'Oh, the power, unseen unheard
Of a saintly pray'r!
By the strength of faith and w
Deeds are wrought fore'er.'

the Lord liveth! Our great Ally ıeth. Our God liveth, the God ıot allow sin and crime to triumph, will conduct His holy cause wicked people. God Almighty, seize upon the strongest walls as ere cobwebs, and who can scatter iest armies like heaps of sand; the ɔnate, the faithful God, who bears heart the weal or woe of every is children, and who hears every 'eels with us every sorrow. Pious ıens His fatherly hands, and they with blessings. Fervent prayer lis fatherly heart, and it is filled . Yes, faithful, incessant prayer wn God Himself from Heaven, and m in our very midst. And if God who can be against us?

then, up in the Tauern Mounh above all, marvelous bells are They are not rung by human still and silent they hang in sunut when storms arise they begin they begin to ring, and their heard far adown the valley.

our Lord has hung prayer-bells ıuman heart. But, alas! in the and happiness of life they are d motionless. But when the f misery and disaster overtake ıey do begin to ring! And many e who had forgotten how to pray : there how to fold his hands once lisery teaches us how to pray. , too, it shall be at home. Let days now upon us, let the war at have overwhelmed us, set the lls in rhythmic swing. Let us our struggling brothers. And on festive occasions. No! No! y at all times. Just as our fathers ır times caused the bells to ring ning, baring their heads when the uck their ears, and praying, 'Re-ı us, O Jesus Christ, since night on!' so in like manner let never a without interceding for your ıt the throne of the Most High. ld up his hands on high until the down and Joshua had smitten vith the sharp edge of the sword. battle is not fought within a y. But do not weary. Do not let your hands sink until victory is won. Let our prayers be a wall of fire around the camp of our brothers.

"And how it will strengthen, inspire, encourage them, the thought: Thousands — nay, millions — at home bear us in their praying hearts. The King of all kings calls 'Volunteers to the front! Who will pray for the Fatherland?' Oh! if we could say: 'The King called, and all, all came. Let not a single one of us miss the summons. He is a man who knows how to pray.'

"History some day will describe the battles of these present days. However, man sees but what is before his eyes, and he can but tell what the wisdom of the leaders, the courage of his men, the sharpness of the weapons have done. Eternity, however, will disclose to our gaze more than that, will show how the hidden, unseen prayer of the faithful and believing has been a great power in these battles, and how once more the promise of old has been fulfilled: 'Call upon Me in thine distress, and I will save thee.'

"And therefore: Cease not in your prayers."

On the first of August, 1914, the Kaiser appeared on his balcony and commended the German people to a militant God in the approaching war:

"A fateful hour has fallen for Germany. Envious peoples everywhere are compelling us to our just defence. The sword has been forced into our hands. I hope that if my efforts at the last hour do not succeed in bringing our opponents to see eye to eye with us and in maintaining the peace, we shall, with God's help, so wield the sword that we shall restore it to its sheath again with honor.

"War would demand of us an enormous sacrifice in property and life, but we should show our enemies what it means to provoke Germany. And now I command you to God. Go to church and kneel before God, and pray for His help for our gallant army."

A few days later he opened the Reichstag with these words:

"The world has been a witness of the indefatigable manner in which we stood in the front rank during the worries and troubles of recent years in the endeavor

to spare the nations of Europe from a war between the great Powers.

"The greatest perils which had arisen owing to the events in the Balkans appeared to have been overcome, but then the assassination of my friend, the Archduke Francis Ferdinand, opened up a great abyss.

"My ally, the Emperor Francis Joseph, was compelled to take up arms for the protection of his empire against the dangerous agitation existing in a neighboring state. In pursuing its interest the Russian Empire stepped in the way of Austria-Hungary.

"Not only our duty as an ally called us to the side of Austria-Hungary, but the great task was cast upon us at the same time, with the ancient community of culture of the two empires, to protect our own position against the attack of unfriendly forces.

"It was with a heavy heart that I was compelled to mobilize my army against a neighbor with whose troops mine had fought side by side on so many fields of battle, and with sincere regret I saw the breaking of a friendship to which Germany had been so faithful.

"The Imperial Russian Government, giving way to an insatiable nationalism, has stepped to the side of a state which, through a criminal act, had brought about the calamity of this war.

"That France also placed herself o side of our opponent was not surp to us. Only too often had our effor bring about more friendly relations the French Republic come into co with the expression of old hopes and long-standing malice.

"The present situation arose not temporary conflicts of interest or d matic combinations, but is the resu ill-will existing for years against strength and prosperity of the Ge Empire. We are not pushed on b desire of conquest. We are moved b unbending desire to secure for our and those coming after us the pl which God has put us.

"My Government and, above a Chancellor, tried until the last m to prevent the worst happening. forced self-defense, with clear con and clean hands we grasp the sword.

"To the peoples and races of the G Empire my appeal goes forth to together fraternally with our a defense of that which we have cre peaceful work.

"Following the example of ou fathers, firm and faithful, earne chivalrous, humble before our G ready to fight when in face of the let us confide ourselves to the eve Almighty, who will strengthen our and conduct it to a good end."

THE POSITION OF TURKEY

BY

A. RUSTEM BEY

TURKISH AMBASSADOR TO THE UNITED STATES

THE Editors of the WORLD'S WORK have asked me to contribute an article dealing with Turkey as an element in the present European situation. I gladly place before the American public, whose sources of information concerning Europe and more especially its southeastern corner are generally tainted, a statement defining the conditions governing to-day or likely to govern at a later stage the attitude of the country I represe doing so I have been frank to the p bluntness and express in human te strong emotions I could not fail to this time. This may be a departu diplomatic conventions, but I s believe that, in this solemn hour, w destinies of Europe, of which the O Empire still forms part, are through a fiery furnace, it would be mistake for those holding responsib

maintain the cult of worn-out forms
mulæ. If further complications, that
y further horrors, are to be avoided,
epresenting their respective coun-
ıould not indulge in the circumlo-
and the dilution of terms which
ıstomary in official style, but should
ɔold statements forcibly reflecting
ings of their nations.

weeks ago Turkey was credited
ıe intention of declaring war on
This has not come to pass.
[this article was written on August
ɜhe is represented as being on the
ɔf actively joining Germany and
-Hungary. Should this be true it
mean that a radical change has
ɔlace in the policy of the Sublime
vhich, as defined in several official
tions on her part, was that of neu-
up to the 15th of August. Having
ut off from code communication
ıen with my Government, I am not
sition to make a definite statement
ny developments in the situation.
ım loath to believe that my country
nge into the fray. I beg and pray
ıe necessity for such a portentous
ı may not have arisen. If, how-
urkey has really resolved to throw
ght into the Austrian-German side
scales it will be largely due to the
ation and despair caused through-
length and breadth of the land by
nsfer to the British flag of the two
ıughts which were building for her
and, the latest — I wish I could say
t — of a long series of attacks by
Britain on Turkish interests and
. Whether Great Britain had or
the right to take over these ships is
rial. To her, who enjoys an over-
ıg superiority over Germany at sea
acting in conjunction with two
aval Powers against her, they were
ısary. To Turkey they meant
ing by reason of the independence
ould have conferred upon her in
to Greece. At the very least Great
should have paid for them on the
She has not settled the account
ıtenting herself with making liberal,
ıberal promises of compensation
the war!

That Great Britain should have adopted a course of systematic hostility to Turkey — a string of other instances of this kind is to be found in the loud and ostentatious support she gave to the Balkan Allies all through the Balkan crisis, in flagrant violation of her treaty engagements pledging her to defend the integrity of the Ottoman Empire, the while adding insult to injury — is the strongest proof among many others of the narrow-mindedness and prejudice with which her later-day statesmen, so different alas! from the Palmerstons, the Salisburys, the Disraelis, deal with vital problems. The after effects of the present struggle, whether it end in triumph or in defeat for the Triple Entente, will open their eyes to the folly of a policy aiming at the weakening of Turkey and her humiliation—that Turkey, who has tried hard to remain a friend of Great Britain despite all. But it will be too late and they will stand condemned before the British nation of the grossest misconception of its interests. At least let them refrain at this, maybe the eleventh hour, when everything is in the balance, from addressing threats to Turkey. This will be only adding one more to the long list of errors in their attitude toward that country.

In proof of the accuracy of my description of the attitude of Great Britain toward Turkey I will quote the following extracts from statements made at the Ottoman Association in London on the 11th of February last, all by Englishmen of high standing:

Sir Thomas Barclay, (who presided): ". . . . If Turkey needed us, we, on the other hand, needed Turkey. She formed part of that neutral zone which generations of our ablest statesmen had considered necessary for the defence and consolidation of our Indian Empire. She also formed part of the line of communication to that Australasia which was destined to be another North America for the Anglo-Saxon race. We had, therefore, political interests of the greatest magnitude in the maintenance of the integrity of Turkey. We had also great economic interests which would be lost if Turkey should pass under the dominion of any

other industrial state or states. The interest of this country in every respect was that we should remain the friend of Turkey and of Turkish regeneration. (Cheers) . . . ."

Sir John D. Rees, M. P.: ". . . He had the highest admiration for the Turk and was at a loss to account for the lack of sympathy exhibited of late toward him . . . . He hoped that with the formation of the Association a new era would be commenced and that our old traditional friend, the Turk, would once more be appreciated."

Mr. Marmaduke Pickthall: ". . . Why was Turkey shut out from the decent money markets of the world? Why was the French loan still withheld? Simply because Turkey showed a fierce determination to resist the further degradation of her country. She was determined to do the work that England was by treaty bound to do for her, to maintain her integrity. We should have secured to Turkey fair financial treatment, which was all she needed to become again the strongest bulwark of our Indian Empire. . . ."

Mr. Harold Cox moved: "That this meeting regrets that the recent policy of Great Britain has the appearance of having been persistently directed against the Turkish Empire. . . . In his judgment Sir Edward's foreign policy had been marked by a long series of disastrous blunders. Take, first, what was said before the war. It was stated that war should not result in any territorial readjustments because everybody believed that Turkey was going to win. Afterward the Powers forgot their resolution and allowed the Balkan States to take the greater part of Turkey in Europe. Then when the Turks occupied Adrianople, first Sir E. Gray and then Mr. Asquith ordered them to clear out, because they were so instructed by Russia. Turkey remained in Adrianople. So England had been dishonored by trying to deprive Turkey of winning back one of her famous cities and having failed. We now had the question of the Islands and Albania. The Ægean Islands must go to Greece because there was a considerable Greek population. Suppose there was a considerable German population in the Isle of Wight, as there was in sum was the Isle of Wight to be handed to the German rule? (Laughter.) T Islands were essential to the defence d Dardanelles, yet we threatened to use in order to compel Turkey to give up. The whole of our foreign policy Sir Edward Grey went to the Fo Office had been marked by subserv to Russia; it had been to keep Tu weak in order that she might be when Russia wanted to swallow When Turkey asked for Englishm help in Armenia Sir E. Grey refuse cause Russia wished to keep Armeni state of disorder. And disorder robbery, rape, and murder. At the p moment England, professedly a Chr Power, was conniving at those crim order that it might be a mouthful f Russian Empire. . . ."

The Hon. Walter Guiness, M seconded the resolution, which wa ported by Professor E. D. Brown carried unanimously.

TURKEY'S RELATIONS TO GERMA

Yes, if Turkey breaks with the Entente it will be largely through th of Great Britain, whose seizure of t Turkish ships shows that the Ot Empire has nothing to hope and thing to fear from her. When she de that she meant to observe a strict neu she was perfectly sincere. It is tru she ordered at the same time a g mobilization, but this was in the of a precautionary measure destin safeguard the security of her terr A painful experience has taught he she is denied in practice the guaran international law and that she can be time the sudden victim of armed a sion. It is because she would not herself any more to be overtaken b a contingency that she called her manhood to arms. It is also true German mission headed by General von Sanders is in charge of the reorg tion of her land forces, but that do mean, as some believe, and other ingenuous, affect to believe, that s abdicated into its hands. Indeed, there was a soldier who was jealous

ty and a Turk who was nothing but t is the young and famous Minister ·, Enver Pasha. To speak of him ch other members of the Turkish t as Prince Saïd Halim Pacha Bey, Djemal Pacha, Djavid Bey — ı of strong and original minds and patriotism — as tools of the Kaiser ; representatives, is an absurd per- of fact proceeding from brains d with the fear of Germany.

les, there is also a large British nission in Turkey, and a consider- ımber of French specialists are in ɔloy.

oubt, Turkey has a great regard for ıy, as it seems to me every other must have which is not absolutely by prejudice; and may have con- at one time or another the advis- of coöperating with her; but she is her beck and call, and has never She has not been "hypnotized" he operation has been called — by lomatists and soldiers, which if it ıe case would only mean that they verer than their rivals. Rather reat Britain and France, especially er, hypnotized themselves into the are that Germany is everywhere ession of men's minds and souls. ıy's attitude toward Turkey has ays been above reproach; but that other great Powers has been much ; and when, two years ago, the ɔf Europe and, I am sorry to add, a, saw in what was considered to agony of Turkey an opportunity ıring contumely and obloquy upon insulting and mocking her — truly, riest exhibition Christianity and ıtalism ever gave to the world — ıy, alone of the group of nations g to be the guides of humanity, vords of sympathy and encourage- or that distressed country. The who may serve as a model in this as ral other respects to many another priding itself upon the superiority ivilization, know how to be grate- : they cannot afford to pay their) Germany in this connection by ; the sword in her behalf. Par- ɔn in a war can be determined only by the call of vital interests or loss of poise resulting from unend rable provocation. In what degree the one or the other or both have operated to bring about a departure on the part of Turkey from her original attitude in relation to the struggle between the two systems of Powers in Europe, I repeat, I have no means of ascertaining.

THE ÆGEAN ISLANDS

Another question which presents considerable interest is whether Turkey will take advantage of the splendid opportunity offered to her to recover Mytilene, Chio, and Samos, which fell into the hands of Greece during the first Balkan war with the other islands of the Ægean not occupied by Italy.

Turkey has not bowed and will not bow to the arbitrary decision of the great Powers of Europe leaving the Greeks in possession of these three islands. Their population is no doubt Greek, but they form part of the geographical system of Asia Minor, and, owing to their proximity to its coast, they would certainly be used by the chauvinistic propounders of the "Great Idea" as bases for bringing into existence the same revolutionary agitation among the Greek population fringing the mainland as was created and kept up so successfully at the expense of Turkey by Greeks, Bulgars, and Serbs in Macedonia. Greek imperialism, which is founded on the pretensions of a race numbering at the very outside 7,000,000, whose principal qualities are gesticulation and declamation, does not seriously threaten Constantinople, whose capture is also modestly included in its programme. But with Mytilene, Chio, and Samos governed from Athens it could make itself dangerously felt in Anatolia. A minor, but still intolerable, inconvenience would result to Turkey from the possession of these islands by the Greeks in the irresistible inclination of the race for contraband trade. For these reasons, but more especially for the first, Turkey is absolutely bent upon reëstablishing her rule in the islands in question, a rule which meant a very liberal autonomy for its inhabitants before as it will mean hereafter. To her their recovery is synonymous with

her survival as an independent state. So much for the importance they have in her eyes. That, on the other hand, the present situation is an extremely favorable one for immediate action in accomplishment of her decision will be gathered from the following facts. Lastly, Servia, Greece's only ally in the Balkan Peninsula, is busy fighting a great Power. Besides, this alliance is founded on an even less solid basis than that which exists between Austria-Hungary and Italy. No sooner had the two countries exchanged signatures pledging one another to amity and coöperation than they started erecting fortifications against one another on their common frontier. The fact is that Servia, debarred as she is from gaining direct access to the Adriatic, has formed secret plans to wrest from Greece the narrow strip of territory which to-day separates her from Salonica, and Greece, to whom the installation of Servia in the province of Monastir became from the day of its consummation a source of national heartburning, is also thinking of the campaign that will transfer to her this territory which, ethnographically speaking, is really neither Greek nor Servian but Turkish and Bulgarian. Roumania, on the other hand, has already ceased to be a sincere supporter of the treaty signed under her dictation in her capital only a year ago, as the result of her intervention in the second Balkan war, when all the parties to it were exhausted — an achievement of opportunist diplomacy aiming at the maintenance of the balance of power in the Balkans through the legislation of Servian and Greek conquests as against Turkey and Bulgaria.

Why this rapid retraction? Because so far as Greece is concerned the massacre five months ago, in a place called Koritza, of Koutzo-Vlaks (Macedonian Roumanians) including their bishop, by local Greeks who had rebelled against Albanian rule under the leadership of officers and with the help of soldiers from the Greek army, reminded her sharply of the deep-seated antagonism existing between the two countries and, so far as Servia is concerned, because Roumania realized, on second thought, her first having been formed somewhat hastily, that an aggrandized Servia flanking her to the west when she is already flank East by the gigantic patron of the Slav state, was not precisely a whose fortunes called for her pr The further prospects of expansio the eventual defeat of Austria-I holds out to Servia, have made provised solicitude for the latter ests entirely cool off. Indeed, t indications since the outbreak of h that she is drawing close to Turkey garia. Montenegro, the Lilliputi dom in the northwestern corne Balkan peninsula, which would n in any case except as an instanc traordinary blustering and theatri turing, is engaged in "annexing" and Herzegovina from Austria. T Balkan country which is free to of its resources as it chooses, E has entirely made up her differen Turkey. Not only is this the case result of the second Balkan w brought about a close community between the two countries. Tur come to consider her continenta as a good riddance, so that the pa desire of Bulgaria to recover from some of the territory taken from but ceded to the former under the sion of defeat in the second Balk does not clash with Turkish asp which are directed only toward occupation of the strategically im Ægean islands. In one word th lived "Christian" alliance of the has no more chance of resuscitati the dead of the second Balkan wa brought it to an end.

How could it, when the differen tian sects, meeting in Jerusalen repeatedly fought with one anothe very precincts of the Holy Sepulcl have been prevented from contin profane the shrine with these scenes guinary violence only by the pe presence of a squad of Turkish soldie with fixed bayonets, keep them a Truly an eloquent comment, more even than the massacres commi the Balkan States.

Thus the great Powers being in war, with the exception of Ital must give undivided attention to

on in central Europe, and Greece condemned to isolation, the situa- s politically very favorable to Turkish ı. The Turkish army of to-day is a / superior instrument to that with ı Turkey fought the allies and de- l Bulgaria. Yes, Turkey *defeated* ıria at Tchataldja as a result of which ıria *sued* for peace. But this is an- story. Thanks to the transfer of *oeben* and *Breslau* to the Turkish flag, ı gives Turkey to-day the same super- in the Ægean which the *Averoff* gave 'eece during the first Balkan war, the :r can attack the latter on the sea every chance of success. This is a y dramatic change in the relation e another of the two rivals for naval macy in that part of the world, which omething almost providential in it, it not only shows Greece deprived of ıe advantages which she expected to e from the acquisition of the *Idaho Mississippi*, but compensates Turkey ıe loss of the *Sultan Osman* and *Réch-* taken over by England just as they going to be delivered to her. No t these two ships represent a fighting r which is considerably superior to of the *Goeben* and her companion, but, :as the former might not have reached ish waters, the latter, called by new s and flying the Star and Crescent, are ' anchored at Constantinople. This first smile Fortune has bestowed upon ey for many a year and the first frown as cast on Greece, to whom it should ı indication of the proverbial fickle- of the goddess. If Greece was vic- ıs in 1912-13, which was largely, al- exclusively, the effect of luck, she 'ery thoroughly beaten by Turkey in when the Fates looked on impartially. ntransigent policy in regard to the sted islands and the general arrogance r attitude toward Turkey may bring her an even greater chastisement.

us the political as well as the mil- situation is favorable to immediate Turkish action in view of the recovery from Greece of her lost islands. And yet, I feel sure she will not move. The reason is very simple. She must husband all her resources and keep them intact so as to be in the best possible position to meet an aggression on the part of some great Power which at the end of the present struggle may feel free and disposed to attack her. And this constitutes a third contingency in the present situation. More than one European Power has still designs on Turkey. Great Britain swooped on Egypt in 1884 and has practically annexed that essentially Mussulman territory, in flagrant violation of the Treaty of Berlin, than which a more solemn international pact has never been concluded and which, drawn up largely under her dictation, pledged her, with the other great European Powers, to respect themselves and defend against others the territorial integrity of the Ottoman Empire. Italy proceeded in the same violently arbitrary manner in regard to Libya. What guarantee has Turkey that she is not exposed to some new act of spoliation on the part of one or the other of the great Powers of Europe, some of which are denouncing Germany very loudly for her violation of Belgian neutrality but are themselves among the greatest treaty breakers of the world?

In this connection I would add that if Turkey is again assailed by a great Power she will fight with the determination and heroism of despair, and I, for one, would strongly advise her, no matter who her adversary, to call to her assistance the whole Mussulman world. Yes, a new attack upon Turkey, proceeding as it would from the fact that she is practically outlawed because she is Mussulman, would justify in unfurling the Green Banner of the Prophet — proclaiming a Holy War. Even so she might fall, but this would be sowing the seeds of an even more extensive and desperate struggle than the one that is raging to-day.

HOW TO READ THE WAR NEWS

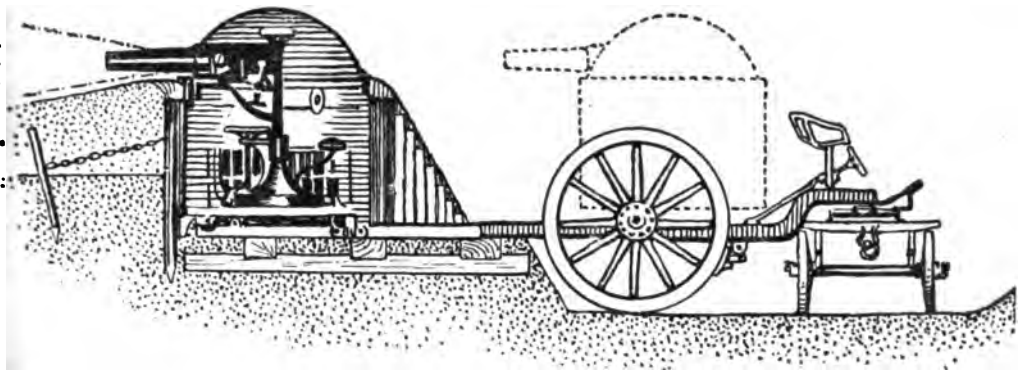
THE A B C OF MILITARY ART, EXPLAINED SO THAT THE TECHNICAL LANGUAGE NEWSPAPER REPORTS IS MADE PLAIN, AND SO THAT THE READER CAN SEE THE BIG PLANS THAT LIE BEHIND THE SEEMINGLY UNORDERED SUCCESSION OF BATTLES

BY

FREDERIC LOUIS HUIDEKOPER

A GREAT army in the field is one of the most cumbersome machines yet devised by man. On one hand it represents the maximum of human force and brutal power of destruction; on the other it is sensitive to certain threats and influences to a degree that is almost incredible. The movements of an army are hedged about with innumerable restrictions. They can be made only in certain directions and under certain conditions, and if these change unexpectedly the entire scheme must as a rule be altered completely. Two opposing armies do not resemble two gladiators shifting their position at will in an arena, but can best be likened to two fencers fighting on a single plank across an abyss. They can thrust or parry, advance or retreat within an area of extraordinary limitation, but if they fail to keep their footing their destruction is certain.

Every great army possesses a General Staff, composed of picked officers whose function is to study military conditions in time of peace and to formulate plans of campaign for war that are comprehensive enough to embrace, so far as the human mind can foresee, all conditions under which the nation's forces can be called upon to operate and to provide against all possible contingencies. The primary object of all plans of campaign is the destruction of the enemy's armies, because they represent the principal obstacle to be overcome and, once disposed of, the task of capturing fortresses or important cities either by siege or by starving them into submission is a secondary consideration and usually merely a matter of time. On the General Staff also devolves the task of selecting the territory through whic armies will move and where they wil counter the enemy. This is known a "theatre of operations," and in it a be found certain "strategic points," p which are important to seize or when cisive actions may be fought. Thei cisiveness may arise from two causes: from their being points or lines of per ent geographical importance — for ample, Paris and the rivers Oise and M in northern France; the Meuse, I Namur, and Antwerp, in Belgium Mosel, Coblenz, Mainz, Leipzig, and lin, in Germany; Brest-Litovsk Kovno in western Russia; and V and the Danube in Austria — and ondly, from the relation which c localities bear to the positions and c tions of the respective armies. Gen speaking, the points in this latter cat are situated on the enemy's flank the reason that their possession facil cutting the adversary off from his b supplies and from his secondary a without exposing one's self to a si risk. As a rule every capital, bei cated at the converging of the main of that country, is a strategic point importance is enhanced by politica sentimental reasons. Defiles and are also strategic points when they stitute the only avenues leading to of importance in the theatre of opera Deserts and swamps, being often i sable, may often be strategic point this connection it is interesting to that an invasion of northern France, Paris as the objective, is facilitated b rivers converging near the capital, prohibit the French from using the lines of defense, whereas a move

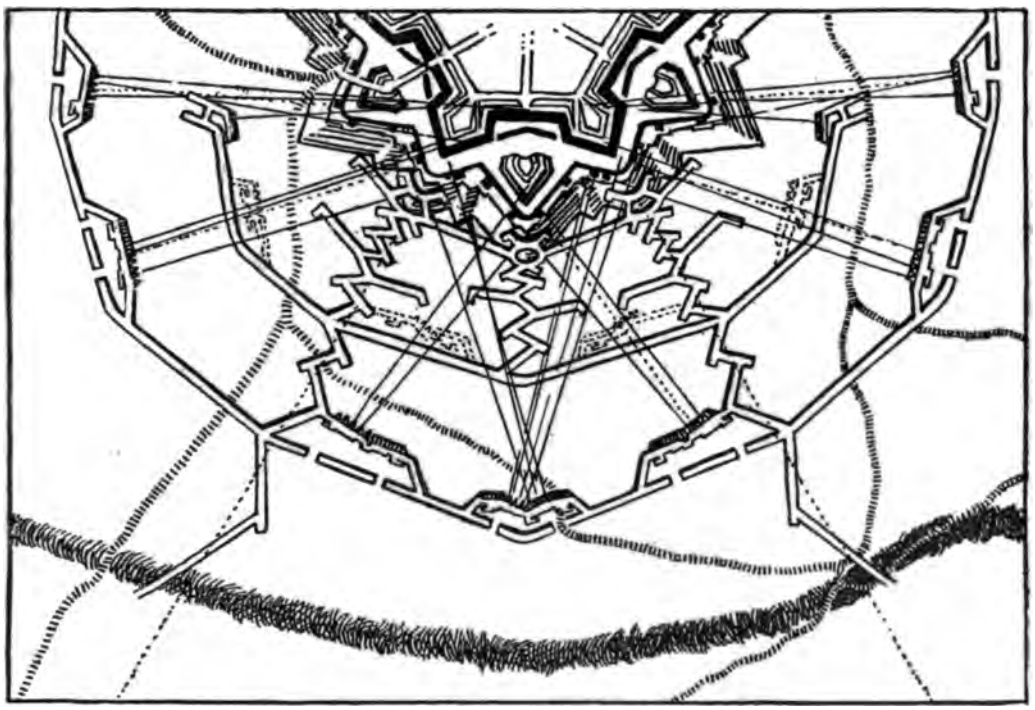


A MOVABLE CUPOLA

A GERMAN DEVICE FROM THE FAMOUS KRUPP WORKS WHICH ENABLES A PROTECTED 5.7-CENTIMETRE [2.24-INCH] GUN TO BE BROUGHT INTO ACTION AT DIFFERENT POINTS ALONG A LINE OF INTRENCHMENTS

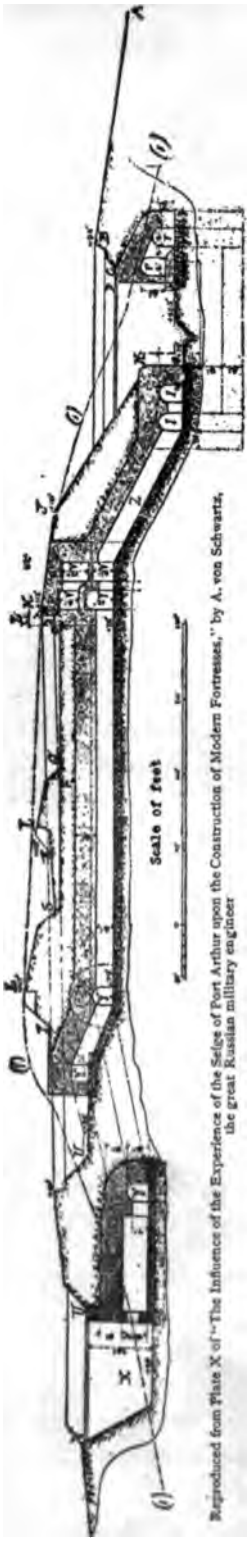
against Berlin undertaken from any direction except the northeast or southeast must necessarily be hampered by the number of rivers to be crossed and opposition which may be encountered at each one.

Strategy is the art of manœuvering troops in the theatre of operations and beyond the presence of the enemy; tactics, that of handling troops in actual contact with an enemy. Other things being equal, the strongest force will always win, and the object of strategy is to place at the decisive point or points in the theatre of operations forces superior in number to those of the adversary. The aim of strategy never changes, and the true test of strategic operations is successful battle wherein the adversary's forces are deprived of the power of further resistance. The final stroke is the pursuit which completes



DIGGING INTO A FORTRESS

THE WHITE LINES SHOW THE CONSTRUCTION OF THE SAPS OR TRENCHES BY WHICH THE BESIEGERS APPROACH A FORTRESS WITHOUT BEING SUBJECT TO THE DIRECT FIRE OF ITS DEFENDERS



Reproduced from Plate X of "The Influence of the Experience of the Seige of Port Arthur upon the Construction of Modern Fortresses," by A. von Schwartz, the great Russian military engineer

PROFILE OF A MODERN FORTRESS

BY COMPARING THE LETTERS ON THE DIAGRAMS WITH THE CORRESPONDING LETTERS IN THE TABULATION BELOW, AN EASILY INTELLIGIBLE EXPLANATION OF THE TECHNICAL TERMS THAT CONSTANTLY RECUR IN NEWSPAPER REPORTS, AND A CLEAR UNDERSTANDING OF THE STRUCTURE OF A FORTRESS, MAY BE OBTAINED. AN ATTACK ON THE FORTRESS WOULD COME FROM THE DIRECTION OF "A."

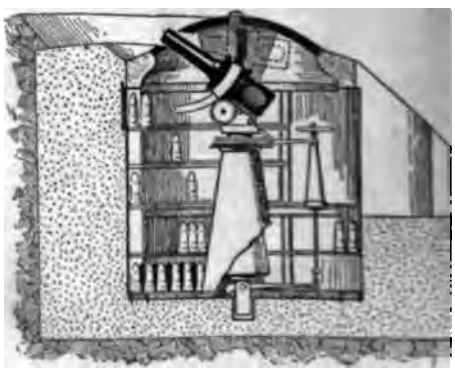
(1), (1), (1). Original site, showing the contour of the ground
A B Glacis
B C D Interior slope of the glacis
C D E Concrete top of counterscarp
E F Counterscarp
F P Counterscarp galleries from which the defenders can fire into the ditch
E G Dry ditch or moat
G H Scarp
I I Scarp galleries from which infantry fire can be directed into the ditch
H J Exterior slope
J K Superior slope
L L L Emplacements for guns protected by steel turrets
M N Interior slope
N O Banquette tread
O P Banquette slope
P Q Terre-plein
Q R Second parapet
S T Third parapet
U U Parapet facing town
U V Drawbridge
X Dry ditch with scarp galleries, facing town
Y Y Galleries which can be used for quarters for troops, magazines, stores, etc.
Z Passage with steps leading to scarp galleries
L L L In the emplacements for guns, the German method, which is generally admitted to be the best, is to put the mortars on the first parapet, the howitzers on the second, and the high-power guns on the third parapet

ARTILLERY PROTECTED BY AN INTRENCHMENT
ON THE CREST OF A RIDGE

the dispersal and annihilation of t emy. It therefore follows that all tegic operations are eventually depe upon the power to fight and that it is to conduct an army to a decisive unless it can maintain its advanta battle.

The object of tactics is identical that of strategy, the sole difference that it is limited to armies in the prese each other. On the other hand, the ods by which it attains its end ar stantly changing, owing to improve in weapons, ammunition, aids to d such as fortifications, whether perm or of the temporary sort, such a intrenchments, the means of ascert information as to the location of the e troops, and to innumerable other ca

Once the theatre of operations ha decided upon, the next step is the sel of a main base — that is, the line which the advance is to be begun or t which a retreat is to be made and which the principal supply of provi ammunition, and reinforcements ar warded to the front — in a word wherewithal to wage war. Bases a two kinds, single or double. A large



A PROTECTED HOWITZER

A STEEL CUPOLA FOR A 4.7-INCH HOWITZER. A PLUNGING FIRE FROM OTHER MORTARS OR HOW CAN HIT A PIECE OF ORDNANCE THUS MOUNTED

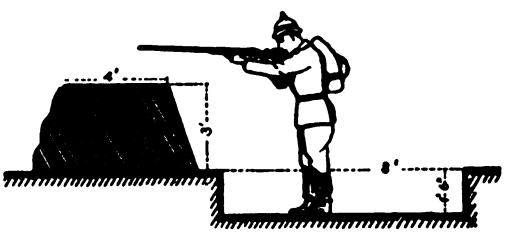
PIECES POSTED ON THE REVERSE SLOPE OF A CREST, WITHOUT INTRENCHING

'er constitutes the best single base, y if it be well fortified and have points for crossing protected by eads. The longer the base the :he advantage to be derived there- that it permits movements to be ɔm any point of its entire length lers it more difficult for the army ıt off from it, but conversely it is ɔ protect than a short base. In the war the principal German base is ıe, and advances can be made from ıt between Basle on the south to .t where it enters Holland on the Even more advantageous is a ɔase, which is one forming a re-en- ngle, one face of which projects ıe side of the theatre of operations. son is obvious, since it permits an to be made from either side of le. To illustrate: Once the Ger- 'e in complete possession of Bel- ıey will have a double base, the Rhine forming one side of the angle and Belgium the other. The longer the Belgian side the more easily they can threaten the left flank and rear of the Allies within the angle. A strong frontier with natural or artificial barriers offers a solid base, although inferior to those just described. As an army moves forward it may form additional bases — called secondary or eventual bases — in order to supplement its main base, but these need not necessarily be parallel to the principal base.

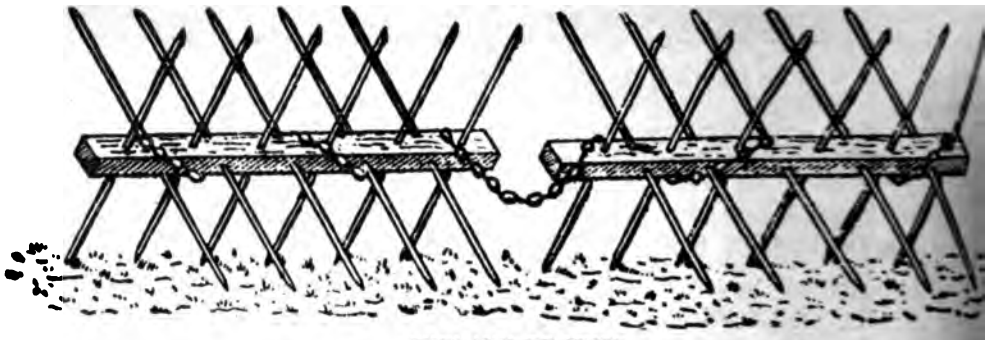
DE LOUP," OR "WOLVES' HOLES"
IARP STAKES IN THEM, TO IMPEDE ATTACKS FORTRESSES, PARTICULARLY EFFECTIVE :AVALRY

SHELTER TRENCH, OR RIFLE PIT
WHICH CAN BE CONSTRUCTED BY THE SOLDIER WITH A SHOVEL IN 30 MINUTES. IT IS ONE FOOT DEEP AND 5 FEET WIDE; THE MOUND OF EARTH IS 2 FEET THICK AND 15 INCHES HIGH

AFTER AN HOUR'S WORK
SHELTER TRENCH DEEPENED TO 18 INCHES AND MOUND RAISED TO 1½ FEET, PERMITTING THE KNEELING POSITION TO BE USED IN FIRING



AFTER TWO OR THREE HOURS' WORK
THE TRENCH WIDENED TO 8 FEET AND THE MOUND INCREASED TO A HEIGHT OF 3 FEET AND A THICKNESS OF ABOUT 4 FEET, THUS PERMITTING AN UPRIGHT POSITION IN FIRING

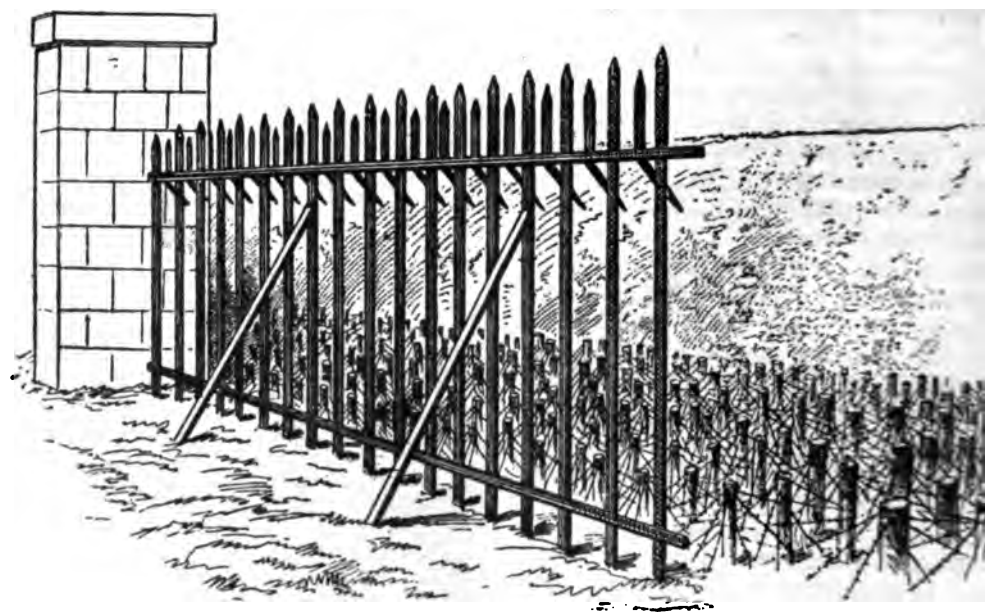


CHEVAUX-DE-FRISE

LIKE WIRE ENTANGLEMENTS THESE ARE USED TO HAMPER THE ADVANCE OF AN ENEMY TOWARD FICATIONS

Zones of operation comprise a certain part of the theatre of war traversed by an army having a fixed goal, regardless of whether such an army operates singly or in conjunction with other armies.

The direction whereby an army advances from its base is known as the "line of operations," and this direction is largely determined by the configuration of the base or bases. Lines of operation are of several sorts: simple, double, interior, exterior, concentric, divergent, deep, secondary, and accidental. The terms explain themselves with two exceptions. Double lines of operation are those followed by two or independent armies operating from di ent points of the same frontier or base, as will be used in the present war by Germans against the French and by Russians against the Germans and Au ans. The most important are "int lines": that is, those used by one or armies in a central position when a against adversaries outside that pos An excellent illustration would be the to be employed by the Germans in they are hemmed in and attacked s taneously by the Russians on the eas



A DEFENCE AGAINST STORMING

TYPICAL GRILLE WITH PROJECTING SPIKES AND WIRE ENTANGLEMENT PLACED IN THE BOTTOM OF A DITCH" OF A FORTIFICATION. THE IRON POSTS ARE ALL FIRMLY SET IN CONCRETE. WIRE ENTANGLE IDENTICAL WITH THE ABOVE ARE ALSO PLACED OUTSIDE THE FIRST LINE OF FORTS TO IMPE E THE APPROACH OF AN ENEMY. SUCH OBSTRUCTIONS ARE USUALLY CARRIED BY COUNTER-MINING OR SA UNDER THEM

AN OBSERVATION STATION

ING HOW IT IS RAISED AND LOWERED BY A COUNTERBALANCE WEIGHT. THE STATION IS MADE OF STEEL SET IN REINFORCED CONCRETE. IT HAS A TELEPHONE CONNECTION WITH THE GUN TURRETS

Allies on the west. The advantage erred by interior lines lies in their ling the possessor to concentrate on given point a greater mass than that is opponents for the reason that he a shorter distance to move and the communication between the parts of orces is closer than that of the enemies ating on exterior lines. The crux good plan of campaign is the selection line of operations so located as to per- the placing in action at the decisive t of greater numbers than the enemy. a line should be directed to a point nd the enemy's flank but not so far nd him that he will readily comprehend urpose and be prepared to frustrate a counter-stroke.

he line of communications — the one which all supplies are forwarded from principal or secondary base to the — is usually identical in direction the line of operations. One of the test proofs of skill in war is the ability combine one's own march as to seize nemy's communications without losing own. As no army can long exist cut off from its supplies, whether of ammunition, or reinforcements, every ral is compelled to safeguard his line ommunications to the utmost of his ty. Napoleon declared that for every he directed to the front he took three he rear. The simplest method to ect one's own line of communications is

IRON LADDER FOR FIELD OBSERVATIONS

A COLLAPSIBLE DEVICE, LIKE THAT OF A WATER-TOWER, VERY USEFUL FOR RECONNAISSANCE IN FLAT COUNTRY

to keep the centre of one's army at right angles to the extremity of that line nearest the enemy, but, as is obvious, such a course restricts the movements greatly. On the other hand, strategic considerations sometimes render advisable a change of front by pivoting on a certain point, which results in the formation of an army parallel to the line of communications. Under such circumstances the utmost care must be taken to strengthen the wing or flank from which the line of communications extends back to the base, lest the enemy break through on that side and sever the army from its supplies.

A "strategic front" is that embraced between certain important positions facing the enemy and occupied successively by an army as it advances in the theatre of operations. The criterion of a great general is his ability to keep the strategic front of his columns extended as much as practicable without unduly exposing them until they are in actual contact with the enemy. By so doing he deceives his adversary as to his real objective as well as permits his own troops to move more rapidly without congestion and to secure supplies from a larger extent of territory. Once a conflict is impending the troops must be massed, the cardinal rule being, "Separate to live, concentrate to strike."

An army has two wings or flanks, one of which is its "strategic flank," in other

ARMORED TURRET RAISED FOR FIRING

words the one which, if threatened, turned, or broken through, more surely imperils its line of communications and its retreat. Advances can be made in either one or more columns, the heads of which are kept at about the same level, in echelon — a formation resembling steps v the side—or in "lozenge form mond shaped)—the one used b When an army advances agains it is preceded by a "screen" o guard composed of cavalry, ho

ARMORED TURRET LOWERED FO VIEW FROM TOP OF PARAPE

and air craft, which can obvi faster than infantry. Its rôle i first, to ascertain all possible i about the enemy; second, t contact with him — often call for the enemy"; and, third, t march of its own army. It is f certain infantry called advan and behind them moves the b army in close columns, the a wagons, supply and baggage tr ing up the rear. In battle for front is composed of the skirmis lowed in turn by successive line reserve which is used only in a determine the fate of the batt the rear are placed the ammuniti hospital, and baggage trains.

Napoleon, in his discussion campaigns, declared that the R queror always sought "to keep united, not to be vulnerable on to move with rapidity on import . . . to give himself all t possible to insure his victory o of battle — i. e., there to un troops."

The campaigns of all great c have been notable for five stra acteristics: (1) the initiative a mencement of hostilities; (2) operations; (3) unity of forces; (

ovement on decisive points; and (5) entration for battle.

is not my purpose to enter upon an rate discussion of the relative merits fensive or defensive operations. To war is to attack, and the offensive e beginning of operations offers the favorable means for making a com- l movement upon a decisive point greatly superior forces. Tactically dered, the defense may or may not be more advantageous according to cir- tances; strategically, the offensive

WHY THE FORTS AT LIÈGE AND NAMUR HELD OUT

FAMOUS STEEL "CUPOLAS" OR TURRETS WHICH BAFFLED THE GERMANS IN BELGIUM. EXTERIOR AND CROSS-SECTION VIEW OF AN ARMORED TURRET FOR TWO 15 CENTIMETRE (5.9 INCH) GUNS

ys has been, and probably always will he superior, since the defense must sarily always await with uncertainty development of the attack and sub- ently conform to it. Even as a means fense, the initiative is greatly pref- e to a passive attitude. The princi- nconveniences of the offensive lie in onstantly decreasing power, in the arative difficulty of supply, and in the sity of guarding a long line of commun- ns when the invader has penetrated nto the enemy's country. These dis- ntages are more than counterbal- anced by the great advantage conferred by the initiative consistently and thoroughly pushed through to its goal.

The second great principle is that of one line of operations — the truth of which has been recognized by military men in all ages. In this connection one must be careful not to confuse the various roads traversed by the different columns with the line of operations, which is the general direction followed by the army. The difficulty of ascertaining at the opening of hostilities the exact decisive point where two or more lines of operation should converge makes it almost impossible to obtain that unity of action which is indispensable in war. When one part of an army operates by one line and another part of the same army uses a different line, the enemy is given a capital opportunity to be the stronger at the decisive point and to defeat them in detail — that is, separately. "Interior lines" come under this same heading, and the tremendous advantage they confer has already been emphasized.

The third great principle is that of the unity of forces. An army may be likened

to a bundle of sticks; united and closely bound together, they will prove formidable; separated, they are easily broken. "United we stand, divided we fall" is a sound motto for every general. Napoleon declared that "in order for an army to fight it must be united," and no military man dreams of questioning the soundness of this doctrine. For that reason every commander seeks to keep his forces in a compact mass lest the enemy penetrate between the columns on the march or through the lines in battle formation and crush first one part and then the other. For the same reason all junctions of army corps should be made in the rear and at a distance from the enemy so that the junction may be undisturbed, and when the attempt is made to turn or outflank an enemy's wing, the turning force must preserve with utmost care its communication with the rest of the army.

The fourth principle is rapidity of movement. The more mobile an ar greater its chance of success, or, as leon so aptly said, "The strengt army, like the amount of moven mechanics, is estimated as the ma tiplied by the rapidity." The mos ant strategical plan is of no avail u be put into active operation bef enemy has been given time to comp and to reply to it by the correct ma To mass troops without imparting

THE OPEN COUNTRY OF THE GERMAN ADVANCE THROUGH BELGIUM

THE HISTORIC FIELD OF WATERLOO, A FEW MILES SOUTH OF BRUSSELS, TYPICAL OF THE TERRAIN OV THE GERMAN RIGHT WING MADE ITS BRILLIANTLY RAPID ADVANCE IN AUGUST

rection to them is equally futile. over, it is useless to discern that th has made a mistake or by a faulty ment laid himself open to defeat u opportunity thus offered is quickl and the blunder punished by a rapi ment against the decisive point. R of movement is not merely the only reap the full advantage of taking itiative, but it is the natural and n complement of the unity of forces. the greatest aim is to get possessio

enemy's communications, but this is virtually impossible without rapidity of movement by united forces.

The fifth principle is that of concentration for battle. The full advantage of the most ably conceived strategical plan cannot be obtained without a successful and decisive battle to complete the dispersion and destruction of the hostile forces. So impossible is it, as a rule, to foresee the exact points where decisive encounters will occur, that the only way to insure superiority is to outnumber the enemy. "One can never be too strong for a decisive battle" — that is the secret of success in a nutshell. Napoleon himself gave the following as a general rule: "When you wish to fight a battle, assemble all your forces. Do not neglect a single one; a battalion sometimes decides the day."

A PASS IN THE VOSGES MOUNTAINS

OVER SUCH COUNTRY THE EXTREME LEFT OF THE GERMAN ADVANCE FOUGHT ITS WAY FROM THE ALSATIAN RHINE VALLEY ACROSS INTO FRANCE NEAR BELFORT, ST. DIE, AND LUNEVILLE

Moreover, he expressly charged commanders, "Never do what the enemy wishes, for the simple reason that he does wish it. Avoid the field of battle which he has studied, reconnoitered, and, even with more care, that which he has fortified or where he has intrenched." In fine, as he declared: "One must keep the army united, concentrate the greatest force possible on the field of battle, profit by every occasion, for Fortune is a woman; if you miss her to-day, do not expect to find her again to-morrow."

Throughout these principles runs the fundamental idea of simplicity. Every military man has learned through experience how extremely difficult it is to execute the least complicated manœuvre even under the most favorable conditions. With large forces and in the actual theatre of war the difficulties increase in such proportion as to make intricate movements almost impossible. Napoleon has himself told us that "The art of war is a simple art and one entirely of execution. There is nothing vague. Everything in it is good sense." The initiative is the simplest way to force an adversary to confor one's own attack; one line of opera is the simplest manner of bringing t decisive point a stronger force than enemy; the unity of forces is the sim way to assure one's own unity of ac to be always ready to fight, and t numerically superior to the enemy i event of an encounter; rapidity of m ment is the simplest manner of surp and out-manœuvering the hostile f and concentration before a battle i simplest way to assure one's own s iority by outnumbering the enemy a time and place of actual and decisive flict. Efficiency in war, as in every else, consists in obtaining the maxi amount of effect with the minimum am of effort, for which simplicity is indis sable. "As war is an art of executio complicated combinations should be carded. Simplicity is the first cond of all good manœuvres."

Frederick the Great declared that cers require different kinds of knowl but one of the principal is that of fort tions," and General Sherman aptly

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IN THE VOSGES MOUNTAINS

SHOWING THE CHARACTER OF THE COUNTRY WHERE THE GERMANS MET THE FRENCH ADVANCE INTO LOR

:moirs that "earth-forts, especially ks, will hereafter play an impor- t in wars, because they enable a rce to hold a superior one in check *ne*, and time is a most valuable in all wars." In the present war ions will play a tremendous rôle, nowledge of what they are and ill prove of assistance in under- the operations of the opposing

cations are of two sorts, perma- d temporary. The former are ted in times of peace with great of durable materials; the latter usually after the declaration of der to strengthen positions which ldenly become of military impor- Generally known as "field forti- " they are of two kinds: ordinary ty. Ordinary fortifications are constructed but with sufficient complete them according to spe- s. Hasty fortifications are those ween the end of a march and the beginning of a battle—sometimes built in a few hours, at others in a single night.

Irrespective of their category, fortifications are nothing more or less than a passive means of defense. To achieve their purpose they must fulfil certain conditions, the most important of which are (1) to shelter the defenders against the fire of the assailant and to screen them from his view; (2) their location must be such that the attacker cannot approach within cannon range without being exposed to the fire of the defense; (3) they must be so located and arranged that the enemy's approach will be difficult and his movements greatly impeded; and (4) the position of the fortification and the shelter for the defenders must be so arranged as not to hinder or impede their movements in any way. This last is particularly essential when an "active defense" is contemplated — that is, one in which the defending force is sufficiently strong not to be restricted to a purely "passive defense" but can leave the position and attack the enemy.

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WHERE THE FRENCH WERE DRIVEN OUT OF ALSACE

RN END OF THE PASS FROM BELFORT TO MÜLHAUSEN, THE SCENE OF DESPERATE FIGHTING BE- IE GERMANS AND THE TEMPORARILY SUCCESSFUL OFFENSIVE MOVEMENT BY THE FRENCH COM- Y GENERAL PAU

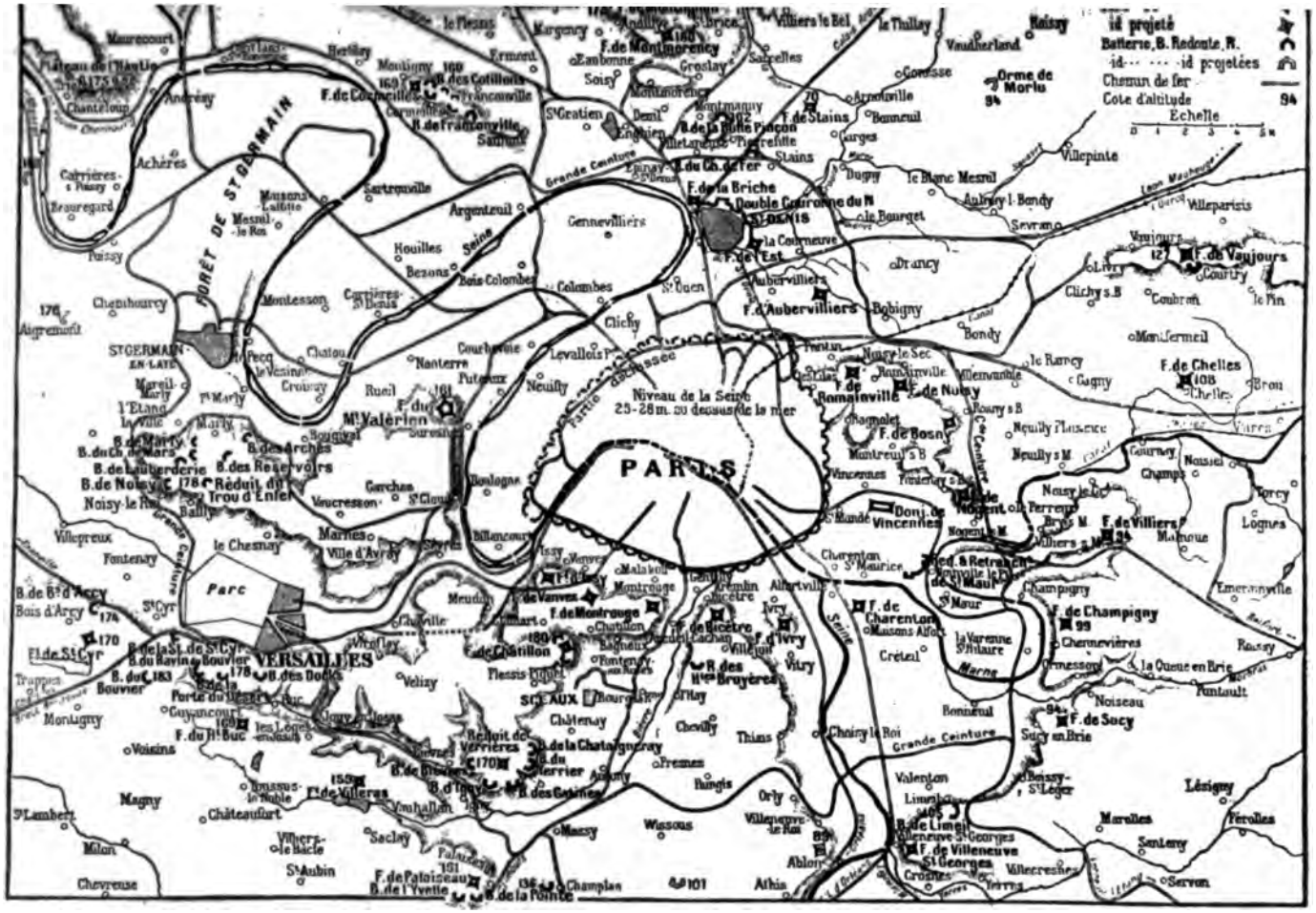
THE NEW TYPE OF GERMAN SIEGE GUNS

FITTED WITH A TREMENDOUS TRAIL AND WITH "CATERPILLAR" WHEELS WHICH ENABLE IT TO BE [illegible] OVER ROUGH GROUND DESPITE ITS ENORMOUS WEIGHT

The strongest of fortifications are of the permanent class and are known as "fortresses." According to the great Russian engineer, Von Schwartz, "the purpose of a fortress is to assist in the stubborn defense of a given point until the end of the [illegible] Its construction must therefore be [illegible] materials that are capable of resisting [illegible] fire of the most powerful guns which [illegible] be brought against it, and for this pur[illegible]

GUN DRILL BY THE BRITISH TERRITORIALS

THIS IS THE MOST POWERFUL TYPE OF GUN IN THE ENGLISH ARMY WHICH CAN BE TRANSPORTED AND [illegible] AGAINST FORTIFICATIONS


id projeté
Batterie, B. Redoute, R.
id··· ··· id projetées
Chemin de fer
Cote d'altitude
Echelle
PARIS
VERSAILLES
FORÊT DE ST GERMAIN
Parc
Niveau de la Seine 25-28 m. au dessus de la mer
Grande Ceinture
Seine
Marne
F. de Montmorency
F. de Stains
F. de la Briche
F. de Vaujours
F. de Chelles
F. de Villiers
F. de Socy
F. de Champigny
F. de Charenton
F. de Ivry
F. de Montrouge
F. de Vanves
F. de Issy
F. de Bicêtre
F. de Romainville
F. de Noisy
F. de Bondy
F. de Aubervilliers
F. de Villeneuve St Georges
F. de Villeras
F. de Palaiseau
F. de St Cyr
F. du Mt Valérien
F. du Mt Buc
F. de Cormeilles
B. de Franconville
B. des Cottillons
B. des Arches
B. des Reservoirs
B. de Noisy
B. de Marly
B. de Lauberdrie
B. des Bruyères
B. des Gatines
B. de la Fontaine
B. de Limeil
Réduit de Verrières
Réduit du Trou d'Enfer
Donj. de Vincennes
Fortin de Nogent
Fortin de Rosny
Fortin de Romainville
Fortin de Noisy
Fortin de Bondy
Fortin de Aubervilliers
Fortin de Stains
Fortin de Montmorency
Fortin de Villiers
Fortin de Champigny
Fortin de Charenton
Fortin de Ivry
Fortin de Bicêtre
Fortin de Montrouge
Fortin de Vanves
Fortin de Issy
Fortin de Chatillon
Fortin de Villeneuve St Georges
Fortin de Villeras
Fortin de Palaiseau
Fortin de St Cyr
Fortin de Cormeilles
Fortin de Franconville
Fortin de Vaujours
Fortin de Chelles
Fortin de Socy
Fortin de Bassy
Fortin de Limeil
Fortin de Villeneuve St Georges
Fortin

earth, sand, masonry, reinforced concrete and steel are employed in modern works.

FORTIFICATIONS OF PARIS AND ANTWERP

The city of Paris is surrounded by a strong enceinte with 97 bastions, outside of which are 17 old forts and 38 new advanced forts with a circumference of more than 90 miles, the whole forming intrenched camps at Versailles and St. Denis. A more comprehensive understanding of the principal elements of a modern stronghold can be gained by examining the plan of the fortifications at Antwerp, the key to Belgium, upon which the Germans have looked with coveting eyes for years. The system used there by General Brialmont, the great Belgian military engineer, is characteristic of all great fortified places. The approaches to the outer line of works are guarded by entanglements composed of iron posts set in concrete and connected by a mesh-work of barbed wire, and by *trous de loup* (deep pits dug outside the line of forts to arrest the advance of an enemy), and the entire terrain is honeycombed with mines which can be exploded at will by electricity. Next come two lines of strong forts encircling the city at a distance of several miles. Each one of these is capable of holding several hundred men and is powerfully armed and protected by every device known to the military engineer, because the fate of a fortress is always decided on the line of the forts. They are connected with each other by intrenchments consisting of a deep ditch covered by fire and bombproof shelters for the troops destined to man them, and by parapets for infantry and artillery. Inside these lines are other intrenchments for infantry which are usually not constructed until mobilization takes place on the eve of war. In the very centre is the main fortress surrounded by a "wet ditch" — one filled with water — and arrangements have been made to permit the entire surroundings to be flooded from the River Scheldt.

WHAT A FORTRESS IS

To describe a great fortress in detail would require a small volume, but a view in profile, such as is given by the diagram on page 526, will suffice to the general scheme and principa teristics. Some idea of the intri size of a modern fortress of the may be gained from the fact perimeter of the outer works s not less than 35 miles. To prev bardment by the most modern mortars the outside circle of forts about six miles from the city an uated that they can cross their fi second line of forts is from two to one half miles nearer the city, should contain at least 600 men searchlights protected by steel magazines for powder and amr an observation station encased in an underground telephone syst necting with all the other forts. guns are mounted in steel turrets thick, not unlike those of battle cept that they rise and fall, an protection is afforded by heav forced concrete with a thickness 9 feet covered by a mass of eartl place by sod.

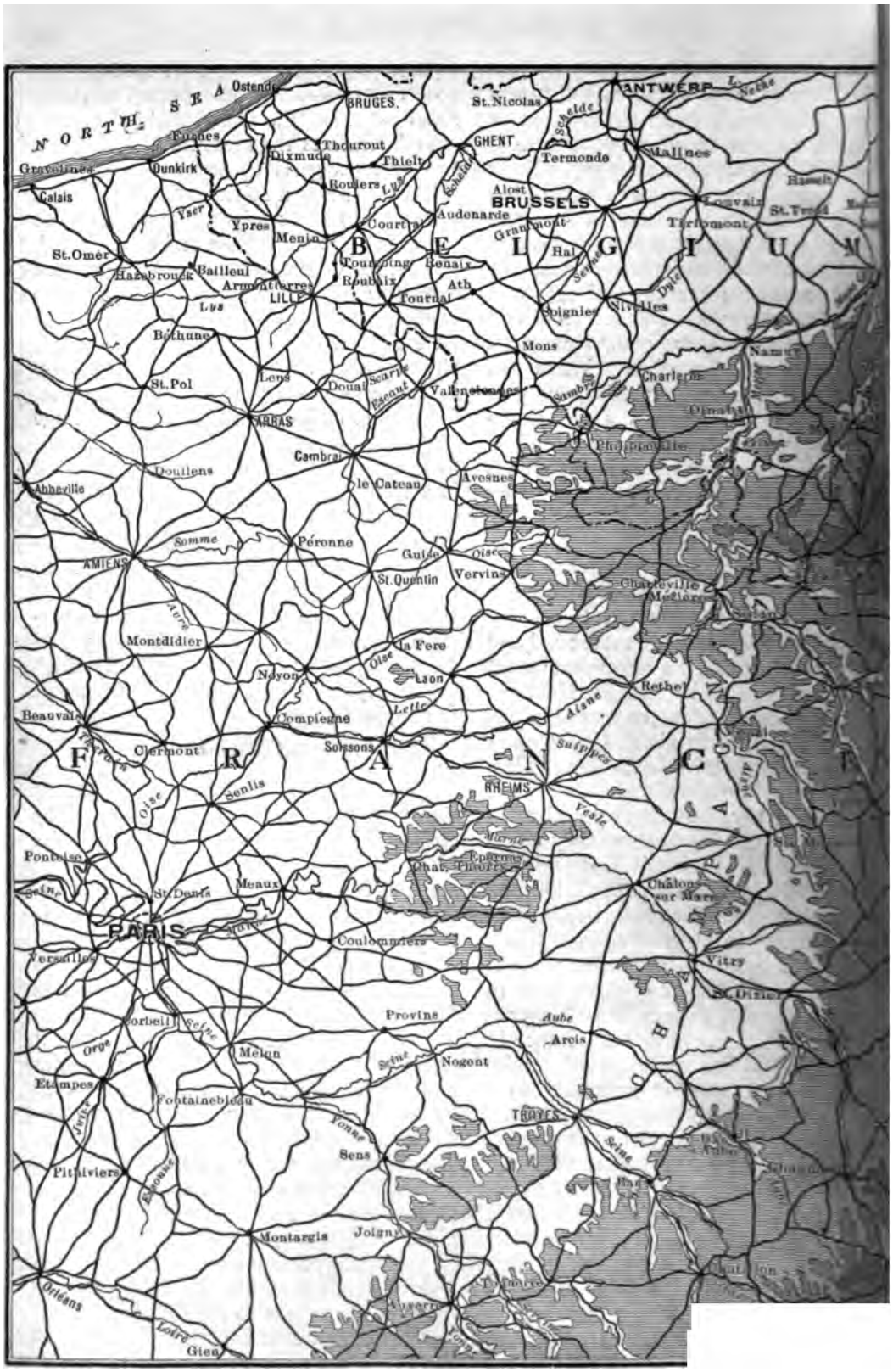
One of the most interesting cha tics is the observation station. cylinder of heavy steel with a balance weight and provided winch so that it may be raised ered. The upper part is pierc small holes affording an outlook, image of the surrounding countr jected by a system of mirrors on on which is fastened a cross-sectio of the entire district with ever given. The approach of an ene thus be followed perfectly and his with reference to any given point within a few yards. The exact communicated by telephone to an the entire system of fortification, mine can be exploded by the pressu electrical button, thus blowing enemy advancing over it.

Fortifications can be captured vation, which may require many by bombardment and assault, w the quickest method; or by sieg ations, which are much slower. T two need no explanation. When is determined upon, the first ste invest the place — that is, surroun

so as to prevent all egress by the gar-
The next step is the establishment
first parallel, a trench protected by
thrown up in front of it such as is
in the diagram on page 525. From
st parallel the besiegers make their
ch by means of zigzag trenches
the "sap." After a certain distance
nd parallel is constructed and the
ain pushed forward. This operation
ated as many times as are necessary,
y fire of siege guns being meanwhile
up against the place. When the
ches have been pushed as close as
able, the assailant's artillery en-
s to make a breach in the fortifica-
y artillery fire and thus permit his
y to enter and carry the place by
t or storm.
ies often resort to field intrench-
to which allusion has already been
These vary in character and size
the hastily constructed trench re-
only half an hour to more solid and
ate works of the semi-permanent
The object of all field fortifications
er to secure the possession of an
ant point or to check the advance
perior enemy with fewer men and less
an would otherwise be necessary.
nly infantry, but cavalry and artil-
hould intrench whenever they are in
roximity to their adversaries.
much emphasis cannot be laid upon
ct that fortifications, irrespective
r nature, do not and cannot decide
te of a war. That is determined
success or failure of the armies in
ld. In the former case fortifica-
nay render invaluable assistance in
g the flanks and rears of armies
lled to mobilize in proximity to a
or enemy and thus prevent their
cut off and defeated in the prepar-
period; they may guarantee the
sion of an important strategic point,
t a valuable river-crossing, secure a
communications, or afford shelter
army. All these depend upon their
n strategically or with reference to
erations of the armies in the field,
upon their strength. If they be
ses, a stubborn defense until the
f the war of the points necessary
to hold and fortified for that specific pur-
pose can reasonably be expected of them.
After all it is "the man behind the gun"
who determines the measure of resistance,
but unless a garrison and its commander
are animated by a spirit to "do or die," a
fortress will not achieve the sole purpose
for which it was planned and constructed.
As points of support strong permanent
fortifications are valuable adjuncts to
armies, and modern conditions require
an extensive system of fortified places so
situated that field forces may manœuvre
in the intervals independently of them,
for it must be borne in mind that the huge
size of the armies of to-day renders the
fortification of one strategic point of small
importance in the development of military
operations at large. In one respect they
are a source of weakness, in that there is al-
ways the temptation when hard pressed
to take refuge in fortresses, and at best
the great numbers of men required to gar-
rison them adequately diminishes by just
so many the armies in the field which
eventually decide the success or failure of
the nation in arms.

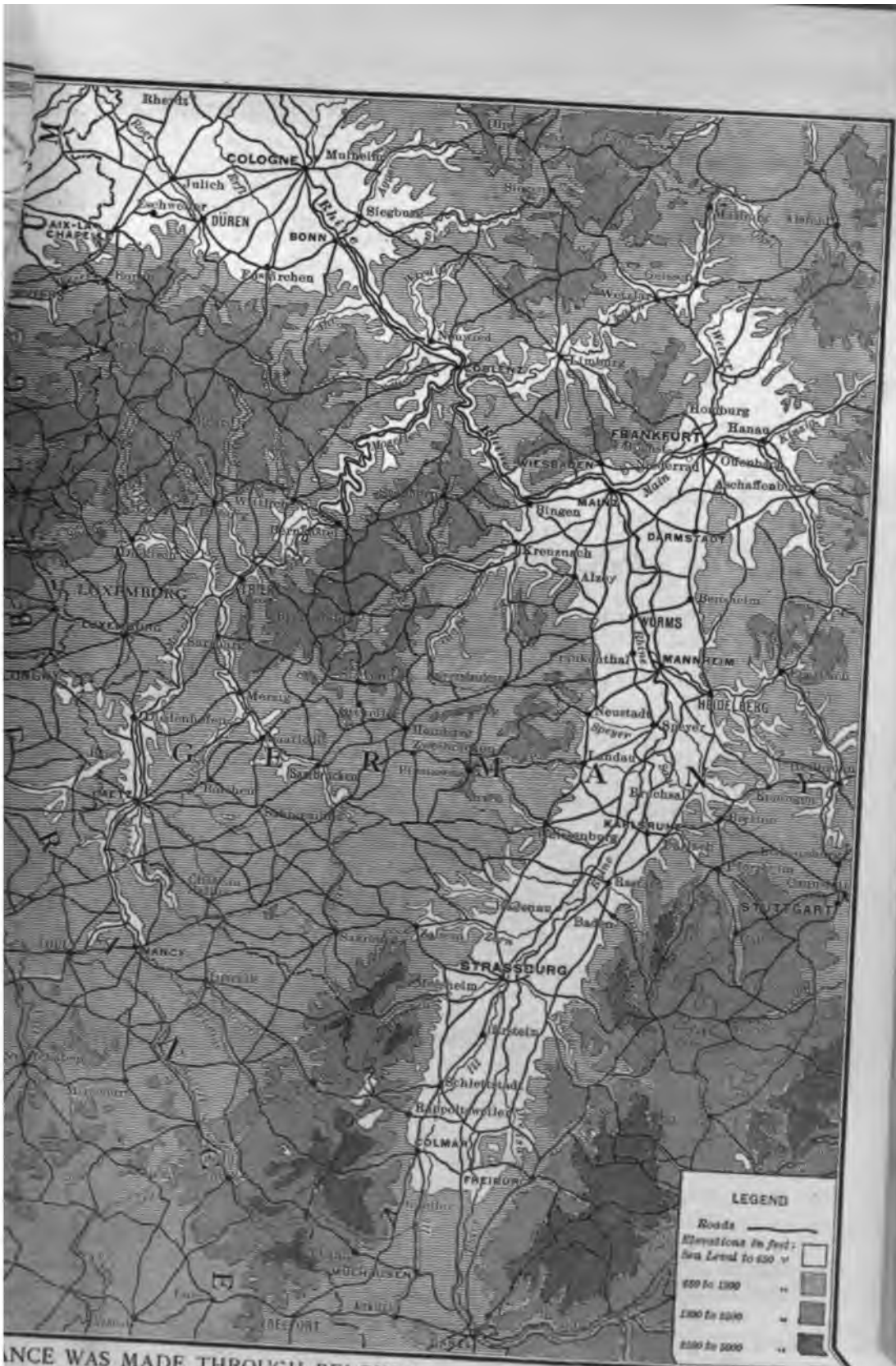
TOPOGRAPHY

The most important river in western
Germany is the Rhine, which rises in the
Grisons in Switzerland, flows north to the
Lake of Constance, then west to Basle,
near which the frontiers of France, Switzer-
land, and Germany meet. At this point it
turns north and slightly east to Strassburg,
where it inclines even more to the east as
far as Mannheim, then north to Mainz
(Mayence) where it receives the Main.
Turning sharply to the west to Bingen, it
flows swiftly between almost perpendicular
rocks of a considerable height, intersected
by deep ravines, northwest past Coblenz —
where it is joined by the Mosel (Moselle)
and where the valley broadens — Ander-
nach and Bonn — where the picturesque
portion ends — and thence through a flat
plain to Nijmegen, where it enters Holland.
In the upper portion from Basle to Speyer
it flows through an alluvial basin often 25
miles in width, but so rapid is the current
and so difficult the navigation that most of
the towns are situated several miles from
the river. Nineteen miles from the angle



WHY THE FIRST GERMAN ATTACK

THIS RELIEF MAP, ON WHICH THE LOWLANDS APPEAR IN WHITE, SHOWS GRAPHICALLY THAT
COLOGNE TO BRUSSELS AND FROM BRUSSELS ALMOST DIRECTLY SOUTH TOWARD PARIS. IT EXP



ANCE WAS MADE THROUGH BELGIUM

EST WAY FOR THE GERMANS TO STRIKE THE FIRST BLOW WAS BY A MARCH DUE WEST FROM

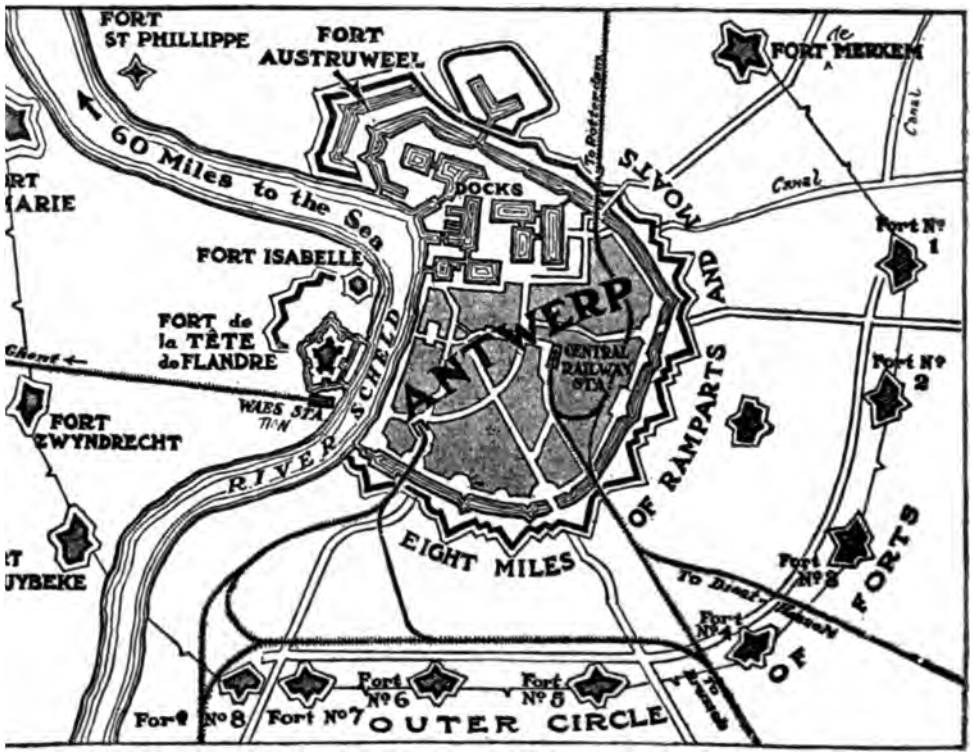
THE COMPARATIVE SLOWNESS OF OPERATIONS OF THE GERMAN CENTRE AND LEFT

is Mühlhausen, the most important manufacturing town in Alsace, east of which begins the Black Forest, celebrated in song and fable and stretching northward beyond Rastatt. To the south of Basle lie the Jura Mountains, separated by the defile leading to Belfort — in which is the town of Altkirch—from the lower end of the Vosges. This chain, forming the western boundary of the basin of the upper Rhine and running parallel to the Black Forest, which it largely resembles, is composed of rather steep heights not exceeding 5,000 feet, with an almost unbroken crest and interspersed with streams whose general course is rarely east or west. North of Altkirch access to the Rhine can be had from France by the difficult defiles leading to Cernay, Colmar, and Schlettstadt. Strassburg can be approached from St. Dié, which is situated east of Épinal, by way of Saales and the narrow valley of the Breusch, but the first convenient pass is near Saarburg and Zabern, which is followed by the railroad to Metz and Paris and is accessible by an easy road from Lunéville and Nancy. At Zabern the Vosges recede from the Rhine but approach it again between Weissenburg and Lauterburg and terminate in the Hardt range, which follows the course of the river to Worms. Opposite Strassburg, where the province of Lorraine sweeps northwest into France, almost parallel to the frontier is the Meurthe, which flows through Lunéville and Nancy, emptying a few miles beyond into the Mosel, whose course is similar in direction except for a detour through Toul. From that point the Mosel makes a broad bow through Metz, then north to Diedenhofen (formerly Thionville) and, inclining more to the east, skirts Luxemburg for 20 miles, receives the Sure at Wasserbillig and the Saar at Trier (Treves), and finally empties into the Rhine at Coblenz, its valley forming an important route from the centre of western Germany into northeastern France. The easiest entrance into Lorraine from the southwest is from Nancy by way of Château-Salins, west of the Vosges mountains, but even this line is intercepted by important transverse valleys leading from Saarleben to Haguenau, from Saargemünd to Weissenburg and Lauterburg, and from Zweibrücken through Kaiserslautern to Mannheim.

North of Diedenhofen is the Duchy of Luxemburg, lying about 500 feet above the sea with occasional heights rising to 1,650 feet. The hills in the southern part are a continuation of the Lorraine plateau, and the northern portion is traversed in every direction by outrunners from the Ardennes. The streams, for the most part insignificant except the Sure, nearly all flow into the Mosel, whereas the woods are particularly extensive and fine, the most notable being that of St. Hubert, the tutelary saint of sportsmen.

The western and northwestern parts of Belgium are perfectly flat, a great plain formed by the sea and but little above its level — indeed, at one place below its level. The provinces of Brabant — where Brussels is situated — and Hainault — which borders on France — are composed of rolling plains about 300 feet above the ocean, with a maximum height of 600 feet. Those of Namur and Liège, which adjoin Luxemburg on the west and north — are more broken, heavily wooded, and picturesque, the valleys of the Sambre and Meuse with their wooded heights, frowning cliffs, and chateaux, being in marked contrast to those of the other rivers that are so abundant in Belgium.

A line drawn from the extreme southwestern corner of France through Troyes (100 miles southeast of Paris) and Reims to the Belgian frontier at Valenciennes divides the country into regions quite unlike each other. On the west and northwest the country is one of plains and low plateaus; on the east, southeast, and in the centre are mountains and high plateaus of not less than 650 feet. To the west and placed like props against the Vosges are the Faucilles Mountains, reaching southward to the plateau of Langres, and farther north the plateau of the upper Marne, joined by the wooded highlands of Argonne to the Ardennes on the northeastern frontier. The basin of the Seine, comprising an area of more than 30,000 square miles, is the most notable characteristic of northern France, its principal tributaries from the north being the Aube, Marne, Oise — which rises in Belgium and



THE FORTIFICATIONS OF ANTWERP

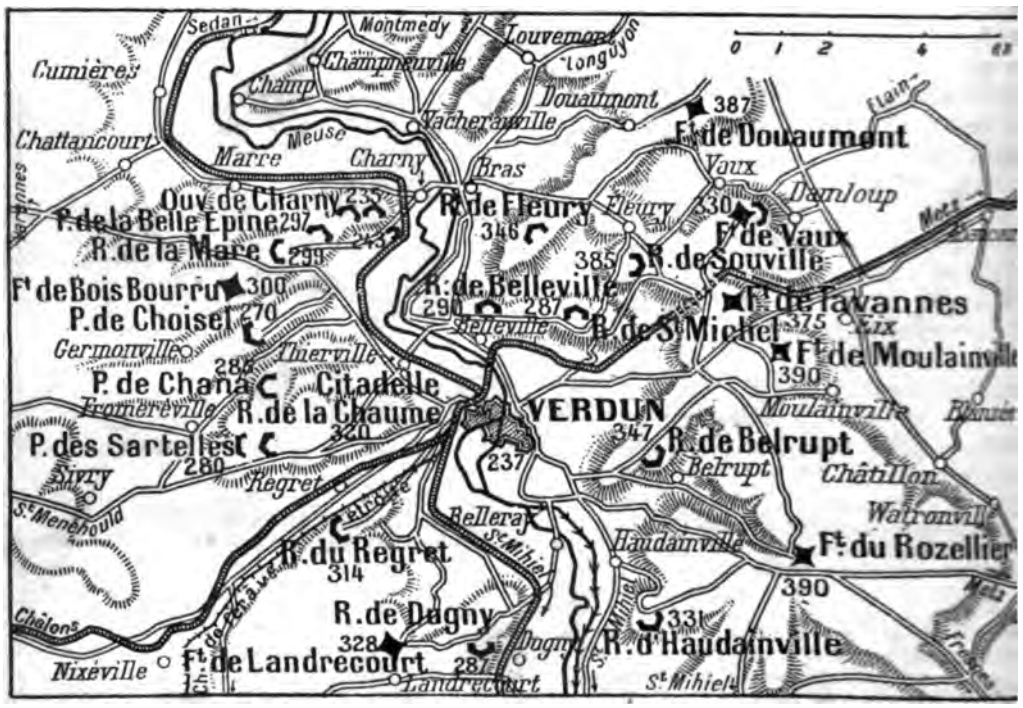
IE ENTIRE TERRITORY BEYOND THE OUTER CIRCLE OF FORTS IS HONEYCOMBED WITH CONCEALED MINES, ENTANGLEMENTS, AND TROUS DE LOUP. THE OUTER FORTS ARE CONNECTED WITH EACH OTHER BY NCHMENTS WITH EMPLACEMENTS FOR ARTILLERY AND PARAPETS FOR INFANTRY, THUS FORMING A NUOUS LINE. INSIDE THIS ARE OTHER FORTS. AND ON THE LEFT BANK OF THE SCHELDT A POWERFUL E-HEAD CALLED "FORT DE LA TETE DE FLANDRE" TO PROTECT THE BRIDGE ACROSS THE RIVER. A LARGE OF TROOPS CAN TAKE REFUGE WITHIN THE OUTER CIRCLE OF FORTS AND IN THAT CASE ADDITIONAL NCHMENTS WOULD BE CONSTRUCTED. THE RAMPARTS OF THE CITY ARE EIGHT MILES IN LENGTH AND COMPOSED OF A POWERFUL PARAPET SURROUNDED BY A DEEP MOAT FILLED WITH WATER. IF NECES- THE ENTIRE COUNTRY CAN BE FLOODED. THE CANAL SHOWN AT THE UPPER RIGHT-HAND CORNER FROM THE SCHELDT TO THE RHINE AND MIGHT BE OF INESTIMABLE SERVICE TO THE GERMAN TORPEDO- IF THEY COULD SECURE POSSESSION OF IT

ned by the Aisne — and the Epte. e extreme northwestern corner the rivers of importance are the Somme he Canche. Northeast of Reims are beginnings of the Ardennes chain, is prolonged through southeastern um and terminates near Liège, the e breaking through it at Mezières. nd these characteristics, the general t of the country between Paris and northeastern frontier is that of an ating plateau interspersed with occa- woods and small streams.

violating the neutrality of Belgium by gaining possession of nearly all country — with the exception of a places like Antwerp, which at the of writing are still held by the Belgians — the Germans have obtained a double base, the Rhine forming the other side of the angle, and are thus able to threaten all allied troops within the perpendiculars let fall from the extremities of either base. The German objective is unquestionably Paris, and an examination of the map will show that their lines of march converge at or near Reims. They have assembled an enormous mass of troops, probably every man they could muster with the exception of the comparatively small number left on the eastern frontier. Such tremendous armies cannot, however, move at great speed and, though certain bodies of infantry have undoubtedly covered 25 miles in a single day's march, the average rate per diem is only about 12

miles, so far as can be calculated. A fair idea of the extent of ground covered by an army corps of 40,000 on the march may be gathered from the fact that the distance from the head of the column to the tail of the various supply and other trains is about 40 miles — in other words, about three days' march.

The Germans are giving an admirable demonstration of the value of the initiative consistently pushed to its fullest measure, and their desperate efforts to force the Allies to battle are due to the fact that just in proportion as they invade France their offensive is bound to decrease in power. This fact has already been pointed out in the first part of this article under the head of Strategy. Aside from this, the quicker they crush the Allies, the more troops they will have available to place on their eastern frontier against the Russians, whose advance is assuming ominous proportions. On the other hand, the rôle of the Allies is manifestly to delay decisi conflict as long as possible. For that re son it is obvious that too many of the troops should not be in the front line a that their left should not extend too f to the north or west. At the present tim (September 5th), sufficient information not at hand to determine whether th have committed such a blunder, but they have done so, they will undoubtedl pay dearly for it, because their centre w be broken and the two wings separat from each other. Their best course is concentrate behind the line of the Riv Marne, with their left resting on Pa and their right strongly reinforced a additionally protected by the fortres facing the Rhine, thus guarding agai any attack from Lorraine or Alsace. J in proportion as the Germans adva beyond Reims they will expose th left and rears to a flank attack from Allies south of the Marne, and at the pro



"THE INTRENCHED CAMP OF VERDUN"

SHOWING THE ARRANGEMENT OF THE FORTS AND REDOUBTS GUARDING THE CITY. VERDUN, TH NORTHERNMOST OF THE FRENCH FORTRESSES FACING THE GERMAN FRONTIER, LIES 50 MILES SOUTHWES OF LUXEMBURG AND ABOUT 30 MILES FROM LONGWY, WHERE THE GERMAN ARMY MADE ITS FIRS ATTACK. IT MUST, THEREFORE, BE CAPTURED OR MASKED BEFORE A FURTHER ADVANCE CAN BE MA BY THE GERMAN ARMY OF THE MOSEL. IT IS ONLY 35 MILES TO METZ BUT 173 FROM PARIS. TH FIGURES ON THE DIAGRAM INDICATE THE HEIGHT OF THE POSITIONS ABOVE THE SEA IN METRES

the French can make a counter- : to the northeast, thus threatening zing the German line of communica- and compelling them to fall back · toward Germany or Belgium. On ther hand, if the Germans are able ıtinue the offensive with the rapidity ovement and unity of forces which employed so admirably at the begin- of their advance, the Allies may be elled either to withdraw their right the line of the Marne to that of the , or even to abandon Paris and fall behind the Loire. In the Franco- ian War Paris, with a force of 300,000, tood a siege from September 19, 1870, nuary 28, 1871. Since that time its cations have been greatly strength- and an immense amount of provisions l away, so that it ought to be able, a garrison of 600,000 men, to hold off ;ermans for months. The Germans l then have failed in their principal t — that is, the destruction of the y's forces in the field. In this con- ›n it must be remembered that, even the Germans invested Paris in Sep- :r, 1870, two French armies, compar- ,y small in numbers, were able to the Germans in a state of constant ty until January, 1871. It therefore vs that if the Allies resort to a Fabian / and keep their armies intact, even equent retreats, they can completely 'ate the Germans in the west and permit the Russians to crush the Kaiser's troops in the east by sheer weight of numbers, if by nothing else.

The Russians are confronted by a very difficult task, because the frontiers of eastern Germany and Austrian Galicia open over Poland like a lion's jaw and both frontiers — especially the German — are tremendously fortified. An advance from western Poland, therefore, presents many obstacles; first, on account of the exposure of both of the Russian flanks to attacks by Germans from the north and by Austrians from the south; second, because three railroads lead from eastern Prussia directly to the Russian rears; and, third, because of the dearth of railroads with which to supply troops massed in western Poland. If the Russians have a sufficient number of men they can readily overcome the first two of these obstacles by masking all the enemy's fortifications — that is, by leaving a sufficient force in front of each one to bottle up the garrisons. Once across the German frontier at any point between Graudenz and Breslau they can push on to Berlin, which is less than 200 miles away. If successful in this advance, they will encounter tremendous resistance on the line of the River Oder, but if they attack this point they will unquestionably compel the Germans to withdraw many of the troops now operating against the Allies in France, and Germany will find herself in a very difficult situation.

THE NAVAL A B C

ELEMENTS OF NAVAL WARFARE: FLEETS, THEIR COMPOSITION AND OPERATION, NAVAL STRATEGY AND TACTICS

: ANY American citizen wishes to see a clear object lesson of a strong naval policy, let him go down to the Battery or the North River in New York Harbor and watch the White Star or rd ships, loaded with food and other aband of war for British and French , slip calmly out to sea, passing on way a forest of yellow funnels along the Hoboken shore, where the big steamers of the North German and Austrian Lloyd and the Hamburg-American fleets lie helplessly docked and for sale. On the shipping pages of the morning papers there is no more German advertising.

Never was a naval policy more thoroughly vindicated in the hour of trial than England's two-power standard. Thus,

while we read of military war and follow ashore the greatest campaigns in the world's history, remember that, so far with little fighting, dominant sea power has made it possible for England to send expeditionary armies across the channel to the assistance of her ally; has made it possible, one month after the declaration of war, for England with France and Japan to control the sea communications between nations, so that now Great Britain can thus insure to herself and her allies the transport of men and supplies which make the long continuance of war possible.

Naval policy varies among the nations. It is not a difficult thing to understand. It is simply a question whether a nation desires that kind of national insurance. But a navy is harder to comprehend: what constitutes a navy, its sphere of operations, its divisions, naval strategy and tactics?

A naval department, whether it is called such or, as in England, "the admiralty," or, as in France, "the ministry of marine," has a double task to perform — the maintenance and direction of the fleet.

The provision and maintenance of the fleet is one thing, an essential thing of the utmost importance; the employment of the fleet is a totally different thing, and a thing of still greater importance. The effectiveness of the fleet when formed for battle is the final measure and justification of all naval organization and activities.

The business of a Navy Department includes the conception, creation, growth, direction, and employment of the fleet, and its subsequent withdrawal and repair.

THE NAVY AFLOAT

The fleet is the unit of naval offense and defense, but in speaking of the fleet it must be remembered that the term is often loosely used to describe varying assemblies of ships at sea. Strictly speaking a fleet is a well rounded-out and definite unit consisting of the main element, battleships, reinforced by armored and scout cruisers, a torpedo flotilla, submarines, and what is called the train, consisting of supply and ammunition ships, colliers and tank steamers, hospital ships, mine layers, repair ships, and, as often in war time, *army* transports under convoy. For the first time in naval history flying carried on board men-of-war and la from their decks will also appear no accessory to naval operations.

The fighting unit of the fleet squadron; of the squadron, the di of the division, the ship.

The fleet should be composed many squadrons as can be asse There is no theoretical limit to the the fleet, nor can the fleet ever b unwieldy owing to its size if the sq be properly organized or trained a the flag officers conversant with the of battle. Although the various el of a fleet are in peace times closel nected by many different meth signaling, in action intercommun must always suffer if not fail er The naval officers who have been in realize that there is no means now e nor, as many officers believe, lik exist, by which signals can be made reliance in battle.

The commander-in-chief must, fore, draw up his instructions or p battle, form his line, and begin the l and then in large measure confide exe locally to his squadron commander must designate for each of them, wi necessary particularity, what the of each and all will be. These t officers will then by their own ex when signals can no longer be tr indicate clearly to their junior flag c how, when, and where to engage.

The squadron, the fighting unit fleet, should be composed of as many as can be easily and efficiently hand battle by one man. In fact, the question of the subdivision of fle determined by one man's capaci control and direct whatever is und command. In our navy the squad composed of four divisions of two each. In the French navy three form a division. In the British an man navies squadron sub-division generally of four ships. When a fleet is being assembled, subdivisio be carried out in strict conformity rules laid down by the General Boar when a small number of vessels is av different combinations become nec

xample, with us the War College and General Board conceive the theory plan the rule; the men who fight the adapt rule and theory to conditions n they have to meet. The squadron have power and it must have flexi-

should be assigned to the complete tactical unit, the squadron: first, the impossibility in battle for one man to supervise and direct efficiently more than a certain definite and limited number of ships; second, the manageable length of a line of

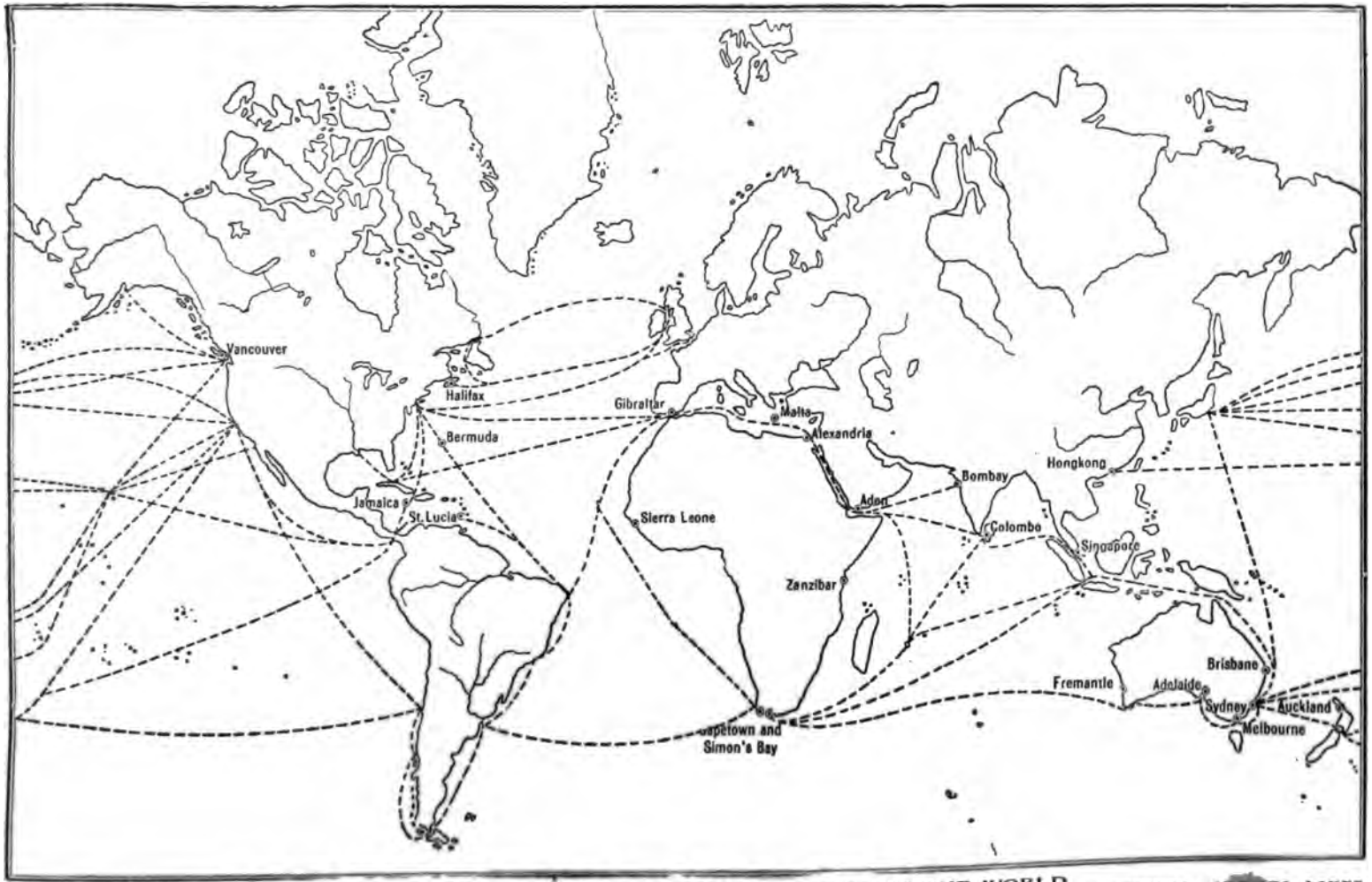
THE NAVAL BASES OF EUROPE

ND, WITH HER STRATEGIC POSITIONS AT GIBRALTAR, PORTSMOUTH, ROSYTH, MALTA, AND THE SUEZ AL, AND HER HITHERTO SUCCESSFUL DIPLOMACY AT CONSTANTINOPLE, CONTROLS THE WHOLE SITUATION

, and it must be capable of swift and direction. Its power should be such it need never fear a temporary isola- no matter how great may be the gth of the opposing formation; and ust have the elasticity, the flexibility, the capability of safe and sure control h suitable subdivision alone can give. ere are two main considerations which limit to the number of ships that

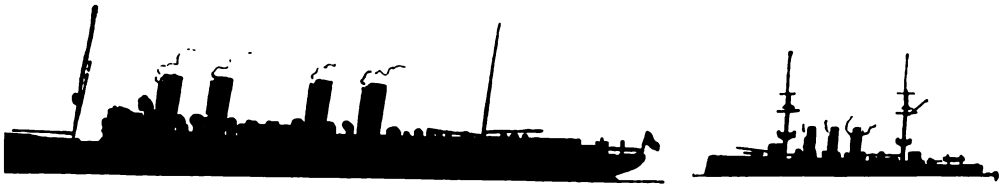
ships should be somehow proportioned to the effective range of the ship's armament, if each vessel is to exert always or generally her full strength.

So much, then, for the organization of the fighting fleet. Naval strategy has to do with the disposition of the various fleet units and all their subsidiary equipment with relation to the enemy's position and the sea territory to be covered. As



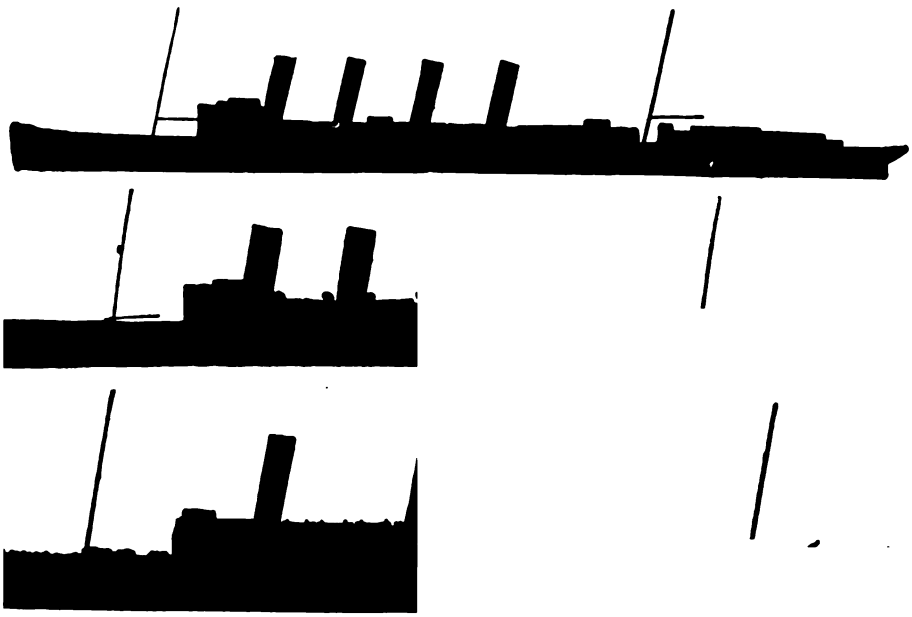
HOW ENGLAND CONTROLS THE TRADE ROUTES OF THE WORLD

EVERY PORT SHOWN ON THE MAP IS AN ENGLISH COALING STATION. THEY ENABLE THE BRITISH CRUISERS TO DOMINATE THE SEA LANES



"KAISER WILHELM DER GROSSE" (GERMAN) "HIGHFLYER" (BRITISH)

HE "KAISER," AFTER SLIPPING OUT OF NEW YORK HARBOR IN THE FIRST DAYS OF THE WAR, ARMED 5-IN. GUNS AND COALED FOR A LONG CRUISE, WAS SUNK OFF THE WEST AFRICAN COAST BY THE BRITISH ER "HIGHFLYER." THEIR SILHOUETTES, BEING DRAWN TO SCALE, GIVE AN EXCELLENT COMPARISON. HIGHFLYER" HAD 6-IN. GUNS AND PARTIAL ARMOR PROTECTION, BUT THE "KAISER," HAD SHE CHOSEN N, COULD HAVE GOT AWAY WITH A MARGIN OF FOUR KNOTS ADVANTAGE IN SPEED



"LUSITANIA" (BRITISH) "OLYMPIC" (BRITISH) "VATERLAND" (GERMAN)

UETTES OF SUBSIDIZED MAIL STEAMERS, CONVERTIBLE IN WAR TIME TO SWIFT COMMERCE-DESTROYING CRUISERS, SHOWING HOW EASILY THEY MAY BE DISTINGUISHED DESPITE DISGUISES

ilitary operations, strategy takes outside of touch; tactics comes into when touch has been established. en the two there is, however, a neutral ground where each merges he other. In the present European or example, German strategy at sea perly entirely defensive. Germany, an inferior fleet, cannot afford to e twice its numbers. It must, there- keep its major units beyond reach of emy while at the same time it uses bmarines, destroyers, and air-craft view to gradually wearing down the 's numbers until at some distant may be able to engage on approxi- y equal terms.

many may also adopt one other phase of sea strategy by making a demonstration in the Baltic or elsewhere of such a character as to divert a portion of the English fleet. If it could succeed in this, it might, by the use of the interior line of the Kiel Canal, be able to send its whole fleet against an equal or inferior number of British ships. Whatever happens, Germany must normally contemplate for some time to come an irritating, developing strategy against the English flotillas in which whatever success she gains must be bought by the sacrifice of her minor elements — cruisers, destroyers, and submarines. The action off Heligoland in late August was an example of this sacrifice.

British naval strategy is the corollary of the German defense. English battle

"IRON DUKE" (BRITISH)

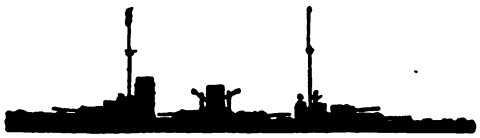
SUPERDREADNAUGHT, 1912; 25,0
TEN 13½-IN. GUNS. NOTICE SINGI
LOW LINES AMIDSHIPS, HEAVY MAS
SUPERSTRUCTURE ROUND FORWAI
SHIP MIGHT BE QUICKLY INDENTI
DIMENSIONS AS BELONGING TO
NAUGHT CLASS. A FURTHER STUDY
BE NECESSARY TO DISTINGUISH H
FROM THE "ORION"

"ORION" (BRITISH)

SUPERDREADNAUGHT, 1911; 22,5
TEN 13½-IN. GUNS. ALTHOUGH VI
TICAL IN TONNAGE AND LENGTH W
(ABOVE), DISTINGUISHABLE BY FUNI
OF MAST AS WELL AS BY LINES OF I

THE "DREADNAUGHT" (BRITISH)

THE FAMOUS SHIP WHICH CHA
GRAMMES ALL OVER THE WORLD IN
21 KNOTS, TEN 12-IN. GUNS. NOTI
UP THE ORIGINAL "ALL-BIG-GUN"
TRAST WITH THE LATER DESIGNS A
MAN "GOEBEN" BELOW



"GOEBEN" (GERMAN)

THIS IS THE GERMAN BATTLE-CRI
HER 28 KNOTS SPEED, RAN THE GA
AND FRENCH FLEETS IN THE MEDI
NOW FLYING THE TURKISH FLAG I
HER SISTER SHIP, THE "MOLTKE
IN THE NORTH RIVER DURING TH
CELEBRATION IN NEW YORK

"SEYDLITZ" (GERMAN)

BATTLE-CRUISER, 1912; 25,000
TEN 11-INCH GUNS. THIS SHI
READILY MISTAKEN FOR THE
"FU-SO" BUT MIGHT BE CONFUS
THE "GOEBEN" CLASS OR THE
FROM THE LATTER TWO VESSELS
DISTINGUISH THIS SHIP BY THE
OF HER FUNNELS, DIFFERENCE IN
ING DERRICKS, AND THE NUMBE

"VON DER TANN" (GERMAN)

LAUNCHED IN 1909; 21,000 TON
GUNS. NOTE STRAIGHT LINES OF
WITH BRITISH TRIPOD MAST

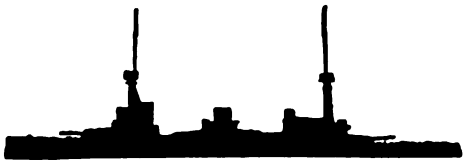
"FU-SO" (JAPANESE)

LAUNCHED IN 1914; THE LAST
DREADNAUGHTS. COMPARE WITH
"TEXAS"

HOW TO I

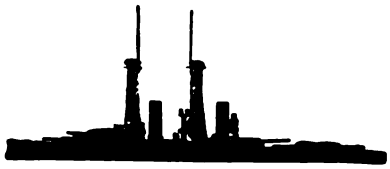
SILHOUETTES, KNOWN BY EVERY SIGNAL QUARTERMASTER AND IN EVERY
AGAINST SEA AND SKY NO MATTER

LE-CRUISER, 1909: 18,750 TONS, 24½ KNOTS, 12-INCH GUNS. BY REFERENCE TO THE IN- SILHOUETTES IN THE CHART ROOM OF AN THE "INDEFATIGABLE," FIVE MILES AWAY, BE RECOGNIZED AS A BRITISH BATTLE-CRUISER : LINES OF HER HULL, FUNNELS, AND SPARS. LE WITH "SEYDLITZ" AND "GOEBEN"



"INDEFATIGABLE" (BRITISH)

DNAUGHT, 1909: 20,000 TONS, 22 KNOTS. TEN GUNS. AMERICAN BATTLESHIPS ARE EASILY UISHABLE FROM SHIPS OF OTHER NAVIES BY "PEACH BASKET" MASTS. IT IS MUCH HARDER L INDIVIDUAL SHIPS IN THE UNITED STATES APART. FOR EXAMPLE, THE "DELAWARE," YEARS EARLIER THAN THE "TEXAS," REPRE- EARLIER IDEAS IN TURRET EMPLACEMENT



"DELAWARE" (AMERICAN)

DNAUGHT, 1912: 27,000 TONS, 22 KNOTS. -INCH GUNS. THESE SHIPS LOOK MUCH ALIKE ERAL BULK AT SEA, BUT MAY BE INDENTI- Y DIFFERENCES IN THE POSITION OF MASTS EGARD TO FUNNELS (BOTH "TEXAS'S" FUN- TWEEN MASTS), POSITION AND TYPE OF HOIST- NES, TURRETS, AND EXTRA SEARCH-LIGHTS "TEXAS'S" MASTS

"TEXAS" (AMERICAN)

RED CRUISER. THE "TREASURE SHIP" NOW E "NORTH CAROLINA" IN EUROPEAN WATERS. UISHABLE FROM PREDREADNAUGHT "IDAHO"), OF APPROXIMATELY EQUAL TONNAGE, BY OF FUNNELS AND SINGLE BATTLE MAST. CURVED LINES OF HOISTING CRANES AS COM- WITH BRITISH AND GERMAN DERRICKS

"TENNESSEE" (AMERICAN)

READNAUGHT BATTLESHIP OF A TYPE NOW E, 1905: 13,000 TONS, 17 KNOTS. FOUR GUNS. SOLD WITH HER SISTER SHIP, THE SSIPPI," SHORTLY BEFORE THE WAR TO . THIS TRANSFER UNDOUBTEDLY LED TO OMPT ADDITION OF THE "GOEBEN" AND AU" BY GERMANY TO THE TURKISH NAVY. E SILHOUETTES OF "IDAHO" AND "GOEBEN"

"IDAHO" (FORMERLY AMERICAN, NOW GREEK)

RED CRUISER, 1908, SAME TONNAGE AS "TEN- " BUT ONE KNOT FASTER. NOTICE THE FOR- FUNNELS AND MASS OF SUPERSTRUCTURE, LY FRENCH. "A MILE AWAY THEY LOOK LIKE E ON THE RHINE"

"WALDECK ROUSSEAU" (FRENCH)

ESHIP, 1908. SHE AND HER SISTER SHIP ARE LY VESSELS WHICH MIGHT AT A DISTANCE BE EN FOR AMERICAN MEN-OF-WAR BY THEIR BUT NOTE CLEAR DISTINCTION FROM AMERICAN IN FUNNELS, SHAPE OF HULL AND BOW, PO- AND SHAPE OF TURRETS

"IMPERATOR PAVEL" (RUSSIAN)

SHIPS AT SEA

GHTING SHIPS NOW CLEARED FOR ACTION, BY WHICH FRIENDS OR FOES MAY BE IDENTIFIED ASQUERADING UNDER FALSE COLORS

fleets in the North Sea must keep beyond an over-night range of swift German destroyers or submarines. We may be certain that their position has been defined by that necessity. Ahead of them, however, is operating a great screen of destroyer and cruiser squadrons constantly keeping in touch with Germany's outmost sea line. Once that disposition was made, England's strategy was simply a matter of sitting tight and waiting for the Kaiser's fleet to "start something."

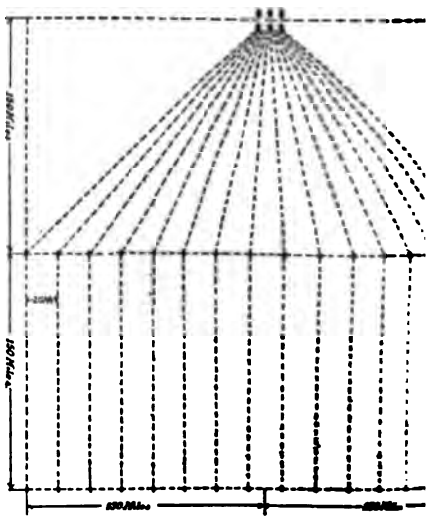
Elsewhere than in the North Sea, on the other hand, British strategy is of an entirely different character. In all the other seas her ships, together with those of her allies, are scouring hither and yon, sweeping German and Austrian commerce off all their accustomed lanes and either forcing the warships of the Alliance to come to action or to be interned in neutral ports.

Once the hostile fleets are in sight of each other strategy ends and tactics begins. Men at desks in cool offices inland have determined what strategy shall be, but tense captains, squinting through eye-slits in their conning towers, determine the tactics of a naval engagement. Long before a hostile fleet or ship has been lifted over the horizon by marine glasses and its identity established by its silhouette, the men who fight the ships have begun to test in grim life-and-death facts careers of theory. The Kriegspiel of the naval schools then begins to be played out to a finish.

Ships and fleets spar for position the way boxers do. In the old days of sailing ships, getting the "weather gauge" was the basic principle. Each ship or squadron brought all its seamanship to bear to get to windward of its opponent. Once in that position it could then bear down on the enemy by running free, could choose its own distance and get across the enemy's bow or stern, thus raking him with broadsides fore and aft; or it could cut through the enemy's line, thus putting his leeward ships out of action, and take on the windward vessels at a heavy disadvantage. Sun, wind, and sea, smoke, and gases—all counted in those days even more than they do now. Then, however, it was an intimate case. In Nelson's ti hundred yards was the average fire, but both sides often came y to yard-arm.

Nowadays the tactics of app still more important, though no long-distance proposition, when the first class can sink each oth tances of five miles or more.

Now the basic principle is to ponderant number of ships against inferior numbers; t greater mass of fire to bear on the other of the enemy's lines œuvre his fleet into separate A naval officer's life is largely d



A 300-MILE SCREEN

A LINE OF ARMORED CRUISERS TWENTY APART, 150 MILES IN FRONT OF THE BATTL AND A SIMILAR LINE OF PROTECTED CRUISE MILES IN FRONT OF THEM, WHICH TOGETHE DESTROYERS AND SUBMARINES FORM THE WHICH PROTECTS THE BATTLESHIPS FROM S ATTACKS

the numberless ways of accomp this end; of getting the enemy so up in his preliminary manœuvre with the advantage of sun, wind, a he may be attacked with a ma chance.

THE RECONNAISSANCE

Out ahead of the battle line, if plenty of sea room, scout cruis combing the ocean. Wherever t ish dreadnaughts may be slowly s

CHERBOURG, WHERE THE FRENCH CHANNEL FLEET LIES

ORTIFIED FRENCH NAVAL BASE ON THE ENGLISH CHANNEL OPPOSITE PLYMOUTH AND A REGULAR PORT OF CALL FOR ENGLISH AND GERMAN TRANSATLANTIC STEAMERS BEFORE THE WAR

at their long anchor chains in the ea, you may be sure that a picket couts is patrolling every knot of water before them, in thick close together, or widely aligned searching sea and sky with their ed lenses by day and raking the s with their searchlights by night. he flying Uhlan regiments screen ements of German infantry col- ushing their way across Belgium, scout cruisers and destroyers German battleships when they the westward locks of the Kiel o fight. They are the cavalry ea.

these scouts have discovered and the enemy's position or have and failed to pierce the hostile hey fall back upon their supports pports advance to reinforce them y rate their work is done when ay or another the enemy's main located with reasonable certainty intention to engage or to run is ed.

matter of scouting and screening there are a hundred different In the chart printed with this ne such theory is represented, wide operations with plenty of n where big fleets are involved. is chart it will be seen how essential and thorough the matter of scouting is regarded in the navy. The French navy advocates a kite-shaped screen, the German, a box formation. Some robust authorities believe in sacrificing even the train to scouting purposes, believing that the loss of all auxiliaries is a slight price to pay for absolute safety from surprise to the main fleet.

This phase of modern naval operations is the most highly scientific of all the stages of battle. To visualize it one must conceive of a fleet of battleships, fifty miles or more away from its enemy, beginning to manœuvre into position with reference to the enemy's course, numbers, and ordinance. The heavier cruisers will try to pass through the enemy's screen and establish his identity beyond doubt and by their signals send by greyhound destroyers the information which the commander-in-chief needs for the disposition of his forces. It would be a beautiful chess game observed from an aeroplane.

THE APPROACH

Keeping in touch with these scouts, the whole force advances in the known but constantly changing direction of the enemy. The main fighting ships are steaming on a line as nearly as possible at right angles with the line of ultimate engagement, each squadron formed in division columns at

BREST

FRANCE'S WESTERNMOST NAVAL BASE ON THE TIP OF BRITTANY: CHARACTERISTIC OF THE ESTUARIES ON THE WESTERN EUROPEAN COAST DREDGED TO MAKE GOOD ANCHORAGES CONTRASTED THE WIDE SEA ROOM OF A BASE LIKE GUANTANAMO IN THE WEST INDIES OR PEARL HARBOR IN

deploying intervals (that is, at sufficient intervals to allow each division to swing into line or follow at safe distances from each other). Each squadron, guid the flag of the commander-in-chief, generally in command of the cent

ALGIERS, OFFERED TO ENGLAND BY THE KAISER AS AN INDUCEMENT TO NEU

THE FRENCH MEDITERRANEAN BASE, MUCH LESS DESIRABLE THAN THE ISLAND STRONGHOLD OF GRE AT MALTA OR THE PENINSULAR ROCK OF GIBRALTAR BECAUSE EASILY ATTACKED ON THE LAN

DAR-ES-SALAAM

TEGICALLY PLACED BUT UNDEVELOPED GERMAN BASE ON THE AFRICAN EAST COAST. BRITISH SHIPS RATING FROM EITHER SINGAPORE, AUSTRALIA, OR CAPE TOWN MIGHT EASILY TAKE THIS POSITION

rst division, stands ready to throw o single column with as little con- r delay as possible.

Now as the two lines approach within actual fighting distance of the other's main force, the scouts, still in advance,

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ON THE BUND AT TSINGTAU

FORTRESS, PROTECTING THE GERMAN TERRITORY AND NAVAL BASE OF KIAO-CHAU IN CHINA, IS SIEGED BY THE JAPANESE FLEET AND ARMY, A SITUATION STRIKINGLY SIMILAR TO THAT AT PORT TEN YEARS AGO

THE KIEL CANAL

THE POSSESSION OF WHICH GIVES THE GERMAN FLEET UNRESTRICTED ACCESS TO BOTH THE BALTIC AND NORTH SEAS

yielding perhaps to the superior pressure of hostile scouts, retire behind the protection of their own fighting ships. From this position they follow the movements of the squadrons during the ensuing engagement and keep out of range unless otherwise ordered. The train, if present, manœuvres in the same way out of range

KIEL, THE CHIEF GERMAN BASE

AT THE EASTERN BALTIC END OF THE CANAL, WHERE THE GERMAN FLEET IS SAFE FROM BRITISH ATTACK AND CAN BOTTLE UP THE RUSSIAN FLEET AT CRONSTADT AND LIBAU

UNDER THE SHADOW OF THE ROCK

: BRITISH FLEETS FIND COAL SUPPLIES AND PROTECTION AT GIBRALTAR, THE SUPPOSEDLY IMPREGNABLE KEY TO THE MEDITERRANEAN

g for its special guard during the the otherwise unemployed cruisers orpedo vessels.

: extreme limit of effective gun fire having been reached, the commander-in-chief gives the signal to each squadron, and each division swings out into the line of battle. If the enemy shows a dis-

A PHASE OF MODERN SEA-STRATEGY

BY WEARING DOWN BRITISH NUMERICAL SUPERIORITY BY AËRIAL AND SUBMARINE ATTACKS OR BY DING THE BRITISH FLEET CAN GERMANY HOPE TO STAKE HER BATTLE-FLEET AGAINST ENGLAND'S

position to close, a skilful commander will profit to the utmost from that eagerness, directing his squadron column leaders to keep the designated enemy's leading, rear, or flank ships exactly abeam. If the enemy is cautious and will not close to the desired range, the squadron commanders, acting by signal on a preconcerted plan, will turn their flagships toward

"SHIP ME SOMEWHERE EAST OF SUEZ"

THE RED SEA GATE OF THE CANAL. CONTROL OF THE CANAL, WITH MALTA AND GIBRALTAR, ENGLAND COMPLETE DOMINANCE OF THE MEDITERRANEAN AND PROMPT ACCESS TO THE INDIAN AND EAST AFRICAN COAST

him at a predetermined angle and the other captains, closely observing his movements, will follow at once his example.

SIGNALS IN PEACE AND WAR

To any one who has carefully observed naval ships in time of peace their signal apparatus is at once beautiful and bewildering. For example, every modern ship is equipped with two or three wireless installations, so that if one be shot away the others may keep up communications. Some people may remember seeing from the yard-arm of a battleship at night a vertical string of red and white lights flash and disappear in constantly varying combinations. This is the Ardois system of signals, used while cruising at sea, port, for long sight distances. Up mast head winks a white eye in "M or other code alphabet. These so-called "blinker" signals, used short distances by the key of a tele instrument. By day you will see the port and starboard ends of the mechanical arms gesticulating up down like those that operate the system on railroads. This is the phore system, generally used when anchor. At night colored lights arms are used in the same way. may also have seen sailors with two in their hands wave them up and down from right to left, sending "wig communications from ship to ship. are only a few of the methods of messages between ships at sea. Ba well planned battle the commander into action without using any one of In the conning tower of each ship arranged battle plan is being followed — plan "6A" or plan "X" — and captain goes ahead with a memo

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KINGSTON, JAMAICA

ERE THE BRITISH FLEETS MAY COAL AND REPAIR IN THE CARIBBEAN WITHIN EASY REACH OF THE VIA THE PANAMA CANAL. WITH BERMUDA AND HALIFAX THIS GIVES ENGLAND A POSITION SECOND O OUR OWN ON THE ATLANTIC COAST

a directing all his faculties to firing eping in alignment with the ships and astern of him. The operations ıal battle, of course, must depend the unforeseeable occurrences in If both sides want to fight, the ching sea battle will probably be decided one way or another. longer a question of lying alongside in a death grapple all day and night as the little *Revenge* did with the Spanish galleons in Sir Walter Raleigh's time, but the victory will not be decisive or compelling unless every remnant of the beaten fleet is captured or utterly destroyed. It is either white flag or sink. To this end the victorious commander will endeavor to press his adversary as closely

SINGAPORE, THE GATE TO CHINA AND THE FAR EAST

T THE TIP OF THE MALAY PENINSULA, WHENCE ENGLAND MAY CONTROL THE INDIAN OCEAN AND THE SOUTH CHINA SEA: THE NAVAL LINK BETWEEN COLOMBO AND HONG KONG

WEI-HAI-WEI

THE ABANDONED BRITISH NAVAL BASE ON THE CHINA COAST, CLOSE TO GERMAN KIAO-CHAU. EN NOW CENTRALIZED HER FAR EASTERN FLEET AT HONG KONG

as possible in order to prevent him from breaking away. In case the enemy runs, he cannot follow directly in his wake, because that would involve too great a risk from torpedoes or mines. He must, therefore, at once bring the rear extremity of the retreating enemy's formation broad off the bow of his column leaders, keeping as many guns as possible bearing upon him and keeping that bearing until sufficient lateral distance has been gained to insure safety and then taking a course parallel with the flight. If the enemy scatters for safety, a general chase may be ordered in detail at once, unless in case of night or bad weather coming on the victor may more properly decide to keep his main fighting ships together and interpose them between the enemy and his probable destination, directing his scouts to keep in touch with the retreating ships.

IDENTIFYING HOSTILE SHIPS AT SEA

In peace times there are many ways by which the nationality or identity of a warship may be determined even by a layman. Flags and ensigns, stripes around the funnels, type observable through a telescope, color of war paint and superstructure trimmings, all combine to determine who is who in the navy.

But no sooner is war declared than every effort is made to disguise the identity and nationality of fighting ships. No flags are flown as a rule until all ne concealment has passed. Ship painted, all distinguishing mar ated. There is just one way t a hostile ship at sea, and that silhouette. By reference to the pages 550-551 the differences be ships of different navies, as they out black against sea and sky, w very interestingly apparent. O ence on these charts will at o servable by any one in the matte United States battleships and cruisers show their peculiar "pea masts against the sky line. In they are unique among the na world with the single exception of of the Russian navy which have type of mast to the original d you will take the Russian silh the chart with those of the *Del Idaho* and compare them with t *Texas* class another interesting appear. On the three former masts were added after they and are out of all conformity design. The masts of the *Texa* up with her gun turrets, and a of the same design.

Contrast with these filmy more distinct lines of the Brit mast, a braced steel spar sta close to the forward funnel, a turn can be clearly distinguished

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HONG KONG, THE FAR-EAST GIBRALTAR

A PERFECT EXAMPLE OF WHAT A NAVAL BASE SHOULD BE; A ROCKY, WELL-FORTIFIED ISLAND FORTRESS PROTECTING A LAND-LOCKED HARBOR LARGE ENOUGH TO HOLD THE NAVIES OF THE WORLD

single straight lines of the French battle masts on the *Waldeck Rousseau*. Also notice how much more chunky and bunched up the *Dreadnaught*, or a pre-dreadnaught like the *Idaho*, is than a superdreadnaught of the *Iron Duke* class, or than the battle-cruiser *Goeben*, of the German navy. The number of funnels and their position are also distinctive to the careful observer, as, for instance, in the *Rousseau*, the *Fu-So*, and the *Imperator Pavel*. The great difference between the English *Olympic* and the German *Vaterland* is visible at once by comparison of their silhouettes.

The distinctions just noted would be clear to any keen observer. Distinctions far more delicate are equally clear to the signal quartermaster on board every man-of-war who can spot a ship at five or ten

BOTTLED-UP LIBAU

RUSSIA'S NAVAL BASE ON THE BALTIC, WHERE THE CZAR'S NAVY IS SHUT IN BY GERMAN CONTROL OF TH KIEL CANAL AND THE STRAITS INTO THE NORTH SEA, JUST AS THE RUSSIAN BLACK SEA FLEET IS SHUT UP BY TURKISH CONTROL OF THE BOSPHORUS

miles by the difference in the position of its searchlights, the type of its lifting cranes, or the sheer lines of its hull.

NAVAL BASES

No fleet can hope to keep the sea long without recourse to a naval base within a radius of a thousand miles of its operations. For this reason Great Britain is to-day in a position absolutely unique among the nations. By reference to the maps published with this article it may be seen that Great Britain's naval stations run completely around the world, making it possible for her to operate away from her home bases with more security than the Germans can from their continental bases.

Germany in Kiao-Chau possesses a fortified naval base, which forthcoming events will prove to be even stronger than Port Arthur, but she has only one and, therefore, it is comparatively useless in linking up her sea power with home waters.

It remains to speak of the tests which forthcoming naval engagements will provide for the still undecided questions of submarine and aërial naval accessories. The recent discussion started by Sir Percy Scott's letter to the London *Times*, in which he prophesies that the present war will demonstrate the inefficiency of dreadnaughts to withstand submar and aërial attacks, has spread to eve naval power. In the next few months will be decided. It must be remember that dirigible airships are properly us only from shore bases and cannot effective far from home coasts. Aeroplan on the other hand, can be launched fro the decks of ships far at sea, and th scouting usefulness has already be demonstrated as well afloat as asho Although it is an easy matter to dr bombs into Antwerp from the sky, would be a much more difficult matter hit the deck of a ship at sea, and ev when so hit one or two bombs would comparatively ineffective unless on t almost impossible chance of droppi down a funnel. As for submarines a destroyers six weeks of the war ha passed without developing their prophesi efficiency as against properly protect battleships. In the Russian-Japanese W the Japanese struck with their torpe craft before the declaration of hostiliti but thereafter accomplished very lit with this arm. In the present nav situation it is presumable that such tempts have been made, and had th been conspicuously successful no cens ship could have withheld some of the tru

Photographed by Harris & Ewing

A NEW FEDERAL TRIBUNAL

THE MEN WHO WILL SUPERVISE THE NEW BANKING LAW — A BULWARK AGAINST FINANCIAL PANICS — ALL SECTIONS AND ALL INTERESTS REPRESENTED ON THE BOARD

BY

BURTON J. HENDRICK

THE European war, which has already unfavorably affected the lives of thousands of Americans, has had at least one desirable result: the prompt organization of the Federal Reserve Board. A happy fortune has certainly directed the American people in this matter. When President Wilson forced the attention of Congress upon the currency measure a year ago, there were many appeals for delay. Sweltering and weary Congressmen, having already spent the hot summer months in Washington, put in a plea for mercy. There was no need of haste, we were told. The Nation had endured a bad currency system for fifty years; couldn't it stand the strain a little longer? Democratic leaders even informed the President that an attempt to force the issue would "split" the party. Mr. Wilson insisted, however, precisely as now, it is worth while to emphasize, he is insisting upon his trust legislation. Certainly events have justified his determination. The greatest military and financial cataclysm in history has disrupted civilization. If the counsels of procrastination had prevailed a year ago, what would be the position of the United States to-day? Few American business men would have cared to face the immediate future with the old, antiquated currency and banking system in force.

They have not yet forgotten 1907; and what was 1907, compared with the possibilities that confront them now? The fact, therefore, that the most influential cause of American panics — the Civil War currency system — is now removed, offers some ground to believe that the business world may confidently approach the severe trials in store for it.

Photographed by Harris & Ewing

MR. WILLIAM G. McADOO

THE BUILDER OF THE FIRST TUBES UNDER THE HUDSON RIVER, WHO IS A MEMBER OF THE FEDERAL RESERVE BOARD BY VIRTUE OF HIS POSITION AS SECRETARY OF THE TREASURY

No wonder, therefore, that the Eur crisis had a sobering effect upon ce bumptious spirits in the Democratic jority. Their attitude toward two o President's appointments, Mr. Jone Mr. Warburg, had held up the orga tion of the Federal Reserve Boar several weeks. The financial earthc in Europe, however, has silenced protests. The Board is now comp and harmoniously working. Pro the American people will soon be f ing an entirely new kind of paper m This money, on its surface, will not n us it is based upon gold, silver, or Go ment bonds, but upon commercial industrial paper. It marks the ap ance of that long discussed and muc lated "elastic currency" — the chief we have been told, that is needc prevent financial panics and to eleva United States into its destined po as a great financial world power.

The seven men composing this Fe Reserve Board have enormous influ They regulate the issue and retirem the new Federal currency. They tically dominate the credit of the financial system, and, therefore, o Nation. The Board can compel Federal reserve banks in a particula of the country to lend money to in any other part. The resources of York, on their demand, can be us relieve financial stringency on the P Coast or in Texas; and Texas and fornia can be called upon to help New Moreover, the Federal Board can d the terms upon which this is to be do that is, they fix the discount rate. can suspend or close up permanentl bank which operates in violation o law. These powers, in the judgme most authorities, signalize for the U States a new industrial era. Acc to an especially optimistic forecast, really sound a new declaration of pendence. They separate New York — "Wall Street" — from the fin tyranny which, according to its acc it has exercised over the whole co They "decentralize" banking credi end for all time the iniquities of the "m power." All Mr. Wilson's legislati

far has had as its aim the "democratization" of certain departments of American life. The tariff bill withdrew many of the favors a privileged aristocracy of manufacturers had enjoyed for sixty years. The trust bills, now under consideration, propose to restore the vanished golden age of competition. The most detailed attempt at the popularization of the Nation's resources, however, is the Currency Act. Credit will no longer flow in the artificial channels of selfishness. A man who has real commercial security will henceforth have far less difficulty in obtaining the money he legitimately needs. It is certainly an irony of politics that a Democratic Administration, and one in which Mr. William J. Bryan is an influential member, should have created a scientific currency system and done it in a way that satisfies both New York City and Lincoln, Neb.

Probably, however, we are all most interested in the personalities of this new Supreme Court. Who are the Marshalls, the Taneys, the Whites who are to have such complete supervision over our financial future and to lay the sound foundation of the new American economic structure in this period of storm and stress? From the standpoint of mere geography, Mr. Wilson has certainly chosen wisely. We have in Mr. Hamlin a member from New England, in Mr. Warburg one from New York, in Mr. Harding one from the South, in Mr. Delano one from the West, in Mr. Miller one from the Pacific Coast. In the matter of "commercial and industrial divisions," the President seems also to have bettered his instructions. The selections contain "Wall Street men," men famous for their hostility to that section, international bankers, domestic bankers, and economic authorities.

The two ex-officio members, Mr. McAdoo and Mr. John Skelton Williams, represent what may be regarded as the traditional Democratic attitude toward the "powers that prey." Mr. McAdoo's term as Secretary of the Treasury has been spent largely in a duel with the National City Bank. He has divorced the Treasury Building at Washington from its close alliance with financial New York. However, there is no need to rehearse once more Mr. McAdoo's career or personality; the facts are widely known. His close abettor in the new treasury policy, Mr. John Skelton Williams, evidently needs a more detailed introduction. At least so well informed a statesman as Senator La Follette has clearly overlooked his fame. When Mr. Williams

Photographed by Harris & Ewing

MR. JOHN SKELTON WILLIAMS

THE CREATOR OF THE SEABOARD AIR LINE RAILROAD, AN ENEMY OF "WALL STREET", AND NOW, AS COMPTROLLER OF THE CURRENCY, AN EX-OFFICIO MEMBER OF THE FEDERAL RESERVE BOARD

MR. W. P. G. HARDING

A PRACTICAL BANKER OF WIDE EXPERIENCE AS PRESIDENT OF THE FIRST NATIONAL BANK OF BIRMINGHAM, ALA., THE LARGEST FINANCIAL INSTITUTION IN THE INDUSTRIAL CENTRE OF THE SOUTH

became First Assistant Secretary of the Treasury Senator La Follette consulted his "Who's Who" and discovered that Mr. Williams was a railroad man, a banker, and a member of the Metropolitan ("Millionaires'") Club in New York. The spirit of the interlocking directorate, said Senator La Follette, was making inroads on the Wilson Administration; and Mr. Williams was subsequently edified by hearing himself described as "Ryan's man," "Wall Street's representative," and other wicked things. The episode illustrates how a few dry biographical details, taken out of their setting, can falsely picture any man. In view of these denunciations, Mr. Williams's newspaper interviews and speeches have a noteworthy interest. For example, a newspaper man once asked Mr. Williams for his opinion of Thomas F. Ryan. Mr. Williams called a stenographer and dictated this statement, subsequently published: "Mr. Ryan has the tendencies which, if his lines had been cast in a humble and contracted sphere, probably would have made him a kleptomaniac."

Mr. Williams's ideas on Wall Street have a similar pungency. Recently, just before taking up his work on the Reserve Board, Mr. Williams spoke at a North Carolina bankers' meeting, on "Democracy in Banking." I have selected at random a few remarks on his favorite topic, New York: "It is a walled city from which the barons have levied tribute on a territory and population vaster than any lord or king of the Middle Ages ever dreamed of." "Big as New York is it is not big enough to direct the destinies of this continent." It can no longer "hold this huge Republic by the throat." It is a "confederation of financiers, ravenous, cruel, and crazed." It represents "the violence, the cupidity, and the mastery of dollars, assembled and used for brigandage." It is the headquarters of "the vicious power of invisible government," which "has reached into the vaults of our banks, the safes of our merchants, and the cupboards of our housewives."

The fact that Mr. La Follette distorts the maker of these phrases into a tool of Mr. Thomas F. Ryan clearly indicates,

as already said, that Mr. Williams and the American people should know each other better. Well, Mr. Williams is a portly, slowly moving, slightly grizzled gentleman, forty-nine years old. There is nothing especially exceptional about his personality; externally he is the well born, well educated, somewhat self satisfied, perhaps slightly pompous American business man. Before he starts speaking, one might easily take Mr. Williams for one of the well fed New York magnates against whom his bitterest shafts are aimed; his accent, however, at once betrays his origin. The interviewer immediately — and accurately — places him in Virginia. In truth, Mr. Williams is a Virginian of the Virginians. Edmund Randolph, the first Attorney General of the United States, was his great, great grandfather; a brother of Martha Washington conspicuously figures in the family tree. His father, a banker of Richmond, was a fiscal agent for the Confederacy. Mr. Williams's intense

Photographed by Brown Bros., N. Y.

MR. FREDERIC ADRIAN DELANO

FOR MANY YEARS RECOGNIZED AS AN ABLE RAILROAD EXECUTIVE OF THE ENLIGHTENED TYPE

Photographed by Harris & Ewing

MR. ADOLPH CASPAR MILLER

FOR MANY YEARS A DISTINGUISHED TEACHER OF ECONOMICS AT HARVARD, CORNELL, THE UNIVERSITY OF CHICAGO, AND THE UNIVERSITY OF CALIFORNIA, AND RECENTLY THE DIRECTOR OF NATIONAL PARKS IN THE DEPARTMENT OF THE INTERIOR

Southern feeling has controlled all his emotions and activities. He first won attention, at the age of twenty-five, by an address on the "Natural Resources of the South." Four years later, at the ripe age of twenty-nine, Mr. Williams undertook an ambitious task: nothing less than the destruction of the monopoly which "Wall Street" then possessed in Southern railroads. The Illinois Central, the Atlantic Coast Line, the Southern, the Louisville & Nashville were then the great railroads of the South; and the South had practically nothing to say about their management. "The Northern nation," and its most iniquitous section, New York City, absolutely dominated them all. This young provincial banker now dreamed of a great line, extending from New York to Florida, that the Southern people should own and operate themselves. He picked

Photographed by Harris & Ewing

MR. CHARLES SUMNER HAMLIN

"A CLEAN CUT, PRECISE, JUDICIAL, IMMACULATELY DRESSED GRADUATE OF HARVARD . . . . ONE OF THE HARDEST LABORERS IN WASHINGTON," WHERE HE IS FIRST ASSISTANT SECRETARY OF THE TREASURY

up first a little run down line, the Alabama & Georgia; to this, in a few years, he hitched up other disconnected properties, until finally, in the Seaboard Air Line, he obtained his locally controlled railroad. Mr. Williams became its president at the age of thirty-four. And then his real troubles began. He found that it was a comparatively simple thing to organize an independent railroad; the really difficult task was to retain it. His bitterest foe was Thomas F. Ryan, who constantly involved the Seaboard in litigation and stock market attacks. Mr. Williams may have suspected and disliked "Wall Street" before; his attitude now became almost a pathological obsession. He poured out newspaper columns of vituperation; if he ever rose to make a speech, it invariably took the form of denouncing the extreme southern end of Manhattan Island. Clearly the enemy reciprocated this feeling. Mr. McAdoo could have committed no act more offensive to "Wall Street" than his selection of Mr. Williams as First Assistant Secretary of the Treasury. W the Administration made him Comptr of the Currency and, ex-officio, a mem of the Federal Reserve Board, the heat raged again. Mr. Williams had to ap before a Senate Committee to answer attacks made upon his integrity. It tribute to his personal power and

Photographed by Harris & E

THE GOVERNOR OF THE BOARD

"EVERYTHING ABOUT MR. HAMLIN, HIS WELL-TING CLOTHES, HIS DELICATELY POISED EYE GLAS HIS SYMMETRICALLY ROUND, CLEANLY SHAVED F HIS GEOMETRICALLY BRUSHED BLOND HAIR, EM SIZES THE SAME QUALITY"

essential honesty of his career that the Committee, after listening to his explanations, immediately reported, advising his confirmation as a member of the Board.

Doubtless the most interesting member of the Board, both because of his own merits and because of the attacks made upon his appointment, is Mr. Paul M. Warburg. Mr. Wilson has recently published his belief that all bankers and business men, even those of the larger sort, are not necessarily public enemies; he showed the courage of this conviction in actually appointing one to the Federal Reserve Board. Patriots of the Bristow stripe at once prepared to rescue the Republic. They clearly detected that Mr. Wilson, in enlisting the services of this banking expert, was compromising with the enemies of mankind. In a modified sense the "money power" itself accepted this view. They looked upon Mr. Warburg as an antidote to John Skelton Williams; as a bone thrown to the famished wolves of finance. There is this much truth in this idea: more than anything else Mr. Warburg's appointment reconciled "big business" to the new currency scheme. But this consideration did not cause Mr. Warburg's appointment. Mr. Wilson was not looking for a politician, a diplomat, or a reconciliator — merely for a banker. The new experiment demanded, first of all, a man experienced in the details of American and foreign finance. Whatever Mr. Warburg's failings or virtues may be, he at least possesses this one qualification; he has had some experience in banking. Just consider, for a moment, his record. Graduating at eighteen from the *Realgymnasium* at Hamburg, he spent a kindergarten of two years studying Hamburg's greatest business — its oversea trade. He then entered his father's firm, M. M. Warburg & Co. He spent two years in France, making an intimate acquaintance with its banking methods. The next two years he was in England studying the same subject. Thence he proceeded, engaged in the same pursuit of learning, to India, China, and Japan, with frequent visits to the United States. If Mr. Warburg has not picked up a certain knowledge of banking in these international experience tours, he must be a very stupid person indeed. As Mr. Wilson is a hearty believer in education, it is not surprising that Mr. Warburg struck him as a valuable man at this critical stage of our new financial experiment.

Mr. Warburg has spent not only his whole life in preparation for this job, but, following Dr. Holmes's advice, he has shown great judgment in selecting his ancestors. The Warburg family is one of the great Jewish banking houses of Europe. Like the Rothschilds, it is cosmopolitan. A geneaological tree of the Warburg dynasty resembles a record of the Hapsburgs or the Bourbons. Representatives of the house are found in all European capitals, in South America, in Asia. In 1796, Moses M. Warburg founded the present Hamburg banking house; since then no man not a Warburg has figured as a partner in the business.

The present Paul M. Warburg shows many evidences of this ancestry. Like most great Jewish bankers, he has back of his technical education a solid substratum of culture. He has the usual thorough German education, knows several modern languages, speaks English faultlessly, almost without an accent, and writes it like a native. He is small, dark, quietly moving, quietly speaking, entirely lacking in bluster or offensive assertiveness. He has the conventional fondness for paintings and a considerable skill in music. His New York home contains a pipe organ; playing this is Mr. Warburg's favorite relaxation. After all, however, his main enthusiasm is banking. An apprentice in a German banking house, even if he is the son of the proprietor, submits to a rigorous régime. German bankers, like Germans in general, insist upon details; they make a boy work early and late and perform all kinds of uncongenial and even menial tasks. Mr. Warburg, like all the others, served his time in 1894. As an outcome of the varied banking training already detailed, Mr. Warburg received his reward in a partnership in his father's bank, and settled down to the traditional Warburg career. He was then twenty-six; a long life as a prosperous German banker lay before him. Probably the idea

furthest from his mind was that he was destined to become an American citizen and to fill a high position under the United States Government. A purely romantic incident changed his life course. In 1894, Mr. Warburg's brother Felix came to New York to marry the daughter of Jacob H. Schiff. On this occasion Mr. Warburg met and fell in love with Miss Nina Loeb, the daughter of Solomon Loeb, one of the founders of Kuhn, Loeb & Co. They were married in 1895. Mrs. Warburg's fondness for New York led to a permanent settlement here; in 1902, Mr. Warburg became a partner in Kuhn, Loeb & Co. This institution, as most Americans know, is, next to J. P. Morgan & Co., our largest banking house. An interesting characteristic is the way its several partners are interrelated. Mr. Jacob H. Schiff, the head, married the daughter of Solomon Loeb. Mr. Felix Warburg, brother of the Reserve Board member, married the daughter of Mr. Schiff. Otto H. Kahn, who was E. H. Harriman's banking associate in all his enterprises, married the daughter of Abraham Wolf, one of the Kuhn-Loeb partners. And finally Mr. Warburg, as already said, became the son-in-law of the late Mr. Loeb.

The newspaper reading public has heard little of Mr. Warburg, though other partners of Kuhn, Loeb & Co. have figured conspicuously in the public prints. Senator Bristow based his hostility purely on Mr. Warburg's connection with this banking firm. According to the Pujo report, Kuhn, Loeb & Co. is a part of the "money trust"; a more tangible objection was its connection with financing the Chicago & Alton transaction. So far as Mr. Warburg was concerned, however, Senator Bristow had considerable difficulty in making out a case. The Chicago & Alton transactions took place in 1899; Mr. Warburg did not join Kuhn, Loeb & Co. until 1902. In fact, he has played little part in the more spectacular operations of the firm. He had nothing to do with the Union Pacific reorganization, the struggle for control of the Burlington, or the Northern Pacific corner; all these things happened before he had settled in New York. His activities have been practically limited to banking matters, especially foreign exchange. The firm's activities in foreign loans — French, Japanese, Chinese — have rested mainly in his hands. He made an excellent showing as the representative of his firm in the five-power group that conducted the famous and abortive negotiations for the Chinese loan. On this occasion he amazed his associates by his knowledge of Chinese conditions. He had apparently studied not only Chinese finance, but Chinese government, geography, diplomacy, history, even Chinese literature. Probably the banking feat of which Mr. Warburg is chiefly proud was his success, several years ago, in negotiating the famous $50,000,000 French loan to the Pennsylvania Railroad. That was the first large loan ever made to an American railroad by French bankers. The French are exceedingly cautious investors; Mr. Warburg is the first banker who has enticed them into this market.

Mr. Warburg, who became an American citizen in 1911, has shown much interest in philanthropy. He has engaged in the warfare on child labor, and, with Miss Katherine Bement Davis, is a director in the New York Bureau of Social Hygiene, an organization, the first of its kind in any country, engaged in a scientific study of the causes of delinquency in girls. He has rendered his greatest public service, however, in currency reform. He turned his mind to this subject a year or two after settling in New York. He had a highly trained banking intelligence; he understood, as completely as any human being could, precisely what ideal banking consisted in. Naturally, the system he found here aroused his amazement and disgust.

Soon after he reached New York, the financial district was experiencing one of its celebrated periods of high interest rates — money was quoted at from 25 to 100 per cent. Mr. Warburg devoted his first three weeks in the United States to studying our currency system. It violated almost every principle which he had been taught to look upon as effective and scientific banking. It made no provision for the centralization of banking resources, for a currency adequate to the needs of business or any real discount system. He

ıd, as he has recently declared, the ɜst and solidest nation in the world ect to periodical financial cataclysms :h had no counterpart in Europe. Mr. 'burg plunged at once into the cam- n for reform. His article, published he New York *Times* in 1906, precipi- d the movement which has ended in recent law. This article tersely sum- ized many of the ideas which were ı more or less vaguely in circulation. ɔrief, Mr. Warburg demanded three ıges: a central bank system, the re- nent of bond-secured currency, and issue of a new currency based upon mercial paper. He followed up his *es* article with many others, enforcing same ideas; these articles had a erful influence in focussing public ntion upon the matter. He advised Aldrich Commission, and also kept :ly in contact with the Senate and se Committee last summer, when the ent law was being framed. In the roversy that arose, whether the Presi- should appoint the Reserve Board or ther the banks themselves should rol the situation, Mr. Warburg took popular side. In his eyes, however, new system is not ideal; it is merely foundation stone of better things. Warburg is not only a hard worker a specialist in his subject but he is a reformer. Had Senator Bristow real cleverness he might have at- ed Mr. Warburg, not on such absurd nds as the Chicago & Alton, but on grounds that there are certain im- ant phases of the new law with h he has no sympathy. The pro- ın for twelve banks he has denounced pernicious"; at most, in Mr. War- 's opinion, there should be only four. r. W. P. G. Harding is as emphatically product of the United States as Mr. burg is of Europe. We could hardly ;ine Broad and Wall Streets referring ally to the dignified Mr. Warburg as ul"; in Birmingham, Ala., however, quite the thing to speak of the city's ıng banker as "Bill" Harding. This obably because there was a time when Harding really was "Bill." Almost ybody can remember him as a tall, slim, alert boy, perched upon a book-keeper's stool or standing behind a receiving teller's window. For he has learned the details of American banking by filling every possible position in a hustling, every-day, commercial bank. In its bare outlines Mr. Harding's biography makes no picturesque appeal. It is merely a succession of dates, of successive promotions. He has spent all his life in Alabama. Tuscaloosa was his birthplace. He is just fifty years old. His father was a civil engineer in the United States Army; a New England man, who, after a few years spent in the South, adopted all the interests and emotions of that region. Mr. Harding was a bright and studious boy; he was graduated from the University of Alabama when seventeen — the youngest graduate in its history. He at once obtained a minor job in a Tuscaloosa bank; thence he moved to Birmingham, where, in a few years, he rose to the presidency of the First National Bank. His friends quote endless statistics to demonstrate his success in this field. Thus the First National had $3,000,000 deposits when Mr. Harding took control; it now has $10,000,000. It is probably the leading bank in the Southern States. Mr. Harding, too, has a minute acquaintance with Southern bankers and banking conditions. Probably no other one man is so well known in the district of which Atlanta is the Federal reserve city. Moreover, Mr. Harding is more than a grubbing banker; he has a large scientific knowledge of the subject; he reads much in his favorite field.

Beyond these facts, however, there is little about him that is striking. He has filled the usual conventional positions that fall to the lot of a "leading citizen"; heads subscription lists, serves as president of the Chamber of Commerce and the like. He is a genial, approachable man most affable, however, when one talks business, especially banking. One could hardly imagine him, like Mr. Warburg, solacing his spirit by solitary practice on the pipe organ. In fact, the absence of lively incidents in his career has a sufficient explanation: Mr. Harding does nothing except work. The one illuminating detail in his biography is that one about

increasing his bank's deposits from $3,000,000 to $10,000,000. Back of these figures is a life of ceaseless activity; of Sundays, holidays, and nights spent in hustling. That is all that, in the last thirty years, Mr. Harding has done — work. Life has meant a contracted career in the four walls of his office, making loans, enticing deposits, looking for ways of increasing the importance of Birmingham and consequently of his bank. In other words, Mr. Harding is the steady, humdrum, wonderfully efficient American banker.

But Mr. Harding has one enthusiasm and that is Birmingham. And there are certain resemblances between him and Birmingham. Perhaps it is because his father was a New Englander; the fact is that the old dreamy South does not find expression in Mr. Harding. He is the new hustling South. Like his city, he has grown up, not only in body but in spirit, since the Civil War. These two new forces in the South started at just about the same time. In War days, the present site of Birmingham was merely a blacksmith shop at a fork in the road; it now contains 130,000 people. It is a big industrial city, a mass of blazing furnaces, coke ovens, and smoke, deposited bodily in one of the greatest cotton growing sections of the South. Industrially, it is a suburb of Pittsburg and Chicago; financially, it is an annex to New York. Merely to run over the list of its leading industries — the Tennessee Coal & Iron Company, the American Steel & Wire — shows how intimately it is associated with the North. Its population is mixed; Southern whites and Negroes, Italians, Poles; at the head, a large element of capitalists from the North. Here, then, is the South to which Mr. Harding belongs; the coal and iron mines and the steel mills typify him — not the cotton fields and Negroes' shanties that lie only a few miles away. He is the new Southern business man, as Oscar Underwood, one of his closest Birmingham friends, is the new Southern statesman. And Birmingham is not only Mr. Harding's symbol; it is, in a measure, his monument. He has probably done more than any other man to build up the town.

greatest satisfaction has been in persuading some new plant to locate the He has never hesitated to place the sources of his bank at the command any legitimate Birmingham enterpri His liberality as a lender is described one of the greatest forces in making th new industrial capital of the South.

Mr. Harding's enthusiasm for Bi mingham led directly to his prese appointment. When the Organizati Committee visited Atlanta, to hold he ings on the reserve bank city for t sixth district, Mr. Harding made appeal for Birmingham. He drew up brief containing an exhaustive examin tion of the subject and outlining his ide as to the twelve districts. On the witn stand he showed an amazing familiari with the banking conditions in all parts the country and especially the South. M Harding did not get a Federal reser bank for Birmingham; his appeal, ho ever, resulted in his own selection as member of the Reserve Board. T system needed a Southerner; his o testimony clearly indicated who t Southerner should be. Not a member the Alabama Congressional delegati not even Mr. Underwood, knew of appointment until it was made.

Mr. Charles Sumner Hamlin, whom t President has designated as governor the Board, or chairman, represents Bost and New England as emphatically as M Harding represents Birmingham and t South. That means that he is quite different kind of man. He is a clean c precise, judicial, immaculately dres graduate of Harvard. The official do ments say that he is fifty-three years o in reality he looks about forty. H family is distinguished in Massachuse and Mr. Hamlin looks it; in Washingt he and his wife, a lady descended fr Knickerbocker aristocracy in Albar N. Y., have a fine house and entertain spl didly; and Mr. Hamlin looks that, t He is not, however, a Brahmin or a butt fly; he is one of the hardest laborers Washington. He can contentedly do m any kind of work; he does not e shrink from drudgery. If you had cau Mr. Hamlin in his off hours any time t past winter, you would have had am

of this. You would have found in his office at the Treasury Depart- or in his library at home, engaged in at first seemed an absorbing game. is desk rested a pamphlet; this Mr. lin was closely scanning. Occasionally ould seize a pencil and make marks on g sheet of paper. Again he would be vered cutting these sheets into small es. Then, for hours at a time, he l shuffle these pasteboards, and ge them thoughtfully in piles. A evidently addicted to solitaire, one t conclude. However, Mr. Hamlin not wasting his time; he was really rming a very valuable public service. vas making an index-digest of the ne tax law! He selected each word phrase, collated them, and arranged in index form. As a result of three hs' off-hour work he succeeded in ng up all the treasures of this docu- to an anxious world. In fact, Mr. lin is the greatest indexer and digester 'ashington. He pounces upon each nent feverishly as it emerges from ress, gathers up the scattered thoughts r law makers, and arranges them in logical sequence. As they come from apitol, the American public hasn't the est idea what they contain; once have passed through the fire of Mr. lin's crucible, everything is plain, ght, and orderly. He showed me great pride his latest masterpiece: nplete index and digest of the new ral Reserve Act. This and his con- nce to the income tax, however, are the latest triumphs of an intellect is determined to reduce the most licated problem to its simplest terms. at is, Mr. Hamlin's most striking is an orderly mind. Everything t him, his well fitting clothes, his itely poised eye-glasses, his sym- cally round, cleanly shaved face, geometrically brushed blond hair, iasize the same quality. His desk otless and unencumbered; there are papers there, but each is carefully d aside in its proper receptacle. Hamlin has performed many public es; all have demanded these same odical, judicial habits. In President Cleveland's second administration he served as Assistant Secretary of the Treasury; he was Mr. Carlisle's right-hand man for four years, just as he has been Mr. McAdoo's in the last year and a half. The Federal Government and Massachusetts have many times called upon him to serve as an international commissioner and arbitrator. He has represented his country in Great Britain, Japan, and Russia. Whenever the perpetually recurring seal controversy makes its appearance, Mr. Hamlin has usually been found pleading his country's cause before some international tribunal. Massachusetts can hardly have a labor dispute without calling in Mr. Hamlin as an arbitrator. Judging from his decisions, which almost invariably result in wage increases, his sympathies are commonly with the workingman. Indeed, despite a somewhat academic personality — Mr. Hamlin has lectured on government at Harvard — he has always championed ultra-progressive measures. He stands for the income tax, the popular election of United States Senators, direct primaries, and the initiative and referendum. An amateur farmer, he qualifies as an active member of the Massachusetts State Grange. He has dabbled in politics, too; he was an early friend and political associate of the late Governor William E. Russell; the fact that he is a Democrat, however, has seriously interfered with his progress in Massachusetts. Twice he has tried for the governorship nomination and twice failed. In all probability these failures are no great misfortune, either for Mr. Hamlin or his state; his real occupation is precisely the kind of task to which he has now been called. He has studied and written much on finance; in the Treasury Department he is recognized as a great fiscal expert; he will be not an ornamental but a hard working member of the Board — the kind of man to whom the other members will confidently submit their knotty questions.

Mr. Adolph Casper Miller, the representative of the Pacific Coast, is a man of similar type. He is even more academic; he is almost professorial. President Eliot, of Harvard, declared that Mr. Miller

was the best qualified man in the United States for the Federal Reserve Board. President Eliot has intimate personal knowledge, because Mr. Miller served for several years as a member of the Harvard faculty. His department was economics and finance. He has spent his whole career as a student and teacher of these subjects. From his earliest days as a student at the University of California, these branches have enlisted the larger part of his time. He has studied them not only at several American universities, but in London and Leipsic; he has taught not only at Harvard, but at Cornell, the University of Chicago, and the University of California. At the latter institution he held the Flood professorship of economics and commerce for twelve years. Here his position seems to have been about the same as Woodrow Wilson's at Princeton. His courses were largely attended; he was an interesting speaker and had a powerful control upon the undergraduates. Mr. Miller would probably have spent his life in this congenial work had it not been for one fact. In his undergraduate days at the University of California, one of his most intimate associates was Franklin K. Lane, now Secretary of the Interior. One of Mr. Lane's first acts, on assuming his new duties, was to send for his old friend and ask him to enter the Government's service. Mr. Miller, therefore, abandoned his academic quiet for the hurly-burly of official life at Washington. For the last year he has served as assistant to Mr. Lane, having particular charge of the National parks. An improvement in our National park service, which had been disorganized for years, is attributed to his reforming capacity.

Besides being a scholar, Mr. Miller is something that most scholars are not — a man of the world. He has private means which permit the indulgence of certain civilizing tastes. He is much of an amateur farmer, usually spending a considerable part of his time at his farm in Santa Cruz. He is fond of music and horseflesh, belongs to many clubs, and is largely traveled. He has shown the keenest interest in the new banking system and regards the new law as the greatest piece of legislation turned out by Co in fifty years. "Miller's chief qual tion for his new work," says his life friend and sponsor, Secretary Lane his preëminent good sense. He com German stock; is level headed, thrown into a panic, is practical sane. He has no intimacies or affilia social or financial, that would unfit for the high and impartial duties o office. I speak authoritatively, be I know what his associations have In short, Mr. Miller is a combinati a gentleman, a scholar, and a man o world, having a knowledge of histo men and affairs, good judgment, robust good sense."

Mr. Wilson's first choice as a me from the Middle West, Mr. Thomas D Jones, represented another attem enlist in the service of the Govern "big business" men of the highest Mr. Wilson had tested Mr. Jones whe latter was one of his trustees at Prin University. In the bitter strugg spired by Mr. Wilson's attempt to i duce a new leveling social order, Mr. became one of his strongest cham Mr. Jones, however, was a director o International Harvester Company purely as a matter of form, one o defendants in the Government's suit. fact gave a handle to Senator Hitch of Nebraska, and Senator Reed, of souri — Democratic Senators who won a fleeting fame for their consi policy in opposing the Democratic a istration. Both these gentlemen tempted to defeat the currency bill i with the help of five Republicans, actually succeeded in keeping Mr. off the board. His successor, who speedily confirmed, is Mr. Frederi Delano. Mr. Delano is a railway dent of the newer generation, bo years and in ideas. His experience been abundant. Born in Hong K China, in 1863, of Massachusetts pa he received his education at Harvar which he is now one of the over As a young man of twenty-two, h changed his academic gown for a chinist's jumper, starting to learn trade of railroading as an apprenti

oundhouses of the Burlington Rail- in Aurora, Ill. That was in 1885; o1, after filling all the intermediate s, he became general manager of the Burlington system. He left this to become consulting engineer to Inited States Government in building ie railroad system of the Philippine ds. When the Gould railroads at ourg — the Wabash Terminal, the ling and Lake Erie — fell upon dis- us times, Mr. Delano was called in esident. He is now one of the re- rs of this tangled enterprise. In the last few years a "new type" of railroad president has figured largely in the public prints; a man who does not think that the beginning and end of his job is to earn dividends for his stockholders, to bribe legislators, and trample on the traveling and shipping public. This new type accepts public service commissions as not only inevitable, but as desirable, does not believe in rebates and discriminations and attempts to establish amicable relations with public opinion. To this type belongs Mr. Delano, and clearly this is the spirit needed on the Federal Reserve Board.

INJURIOUS POLICIES OF LABOR UNIONS

ORM WAGE — LIMITATION OF OUTPUT — THE SURRENDER OF THE INDIVIDUAL

BY

CHARLES W. ELIOT

(PRESIDENT EMERITUS OF HARVARD UNIVERSITY)

(SPEECH AND ANSWERS TO QUESTIONS BEFORE THE BROCKTON FORUM, BROCKTON, MASS., MARCH 22, 1914.)

WE ALL know that the unions, which began to be effectively organized some hundred years ago, have done a great deal od toward increased wages and short- hours, and have accomplished much iprove the conditions under which the ry work of the world is performed. e is no doubt about the benefits that orking class, so-called, and the whole nunity, have received through the itions of trades-unions. There is no t, also, that the organization of men rades is going to last. Nobody im- s the ceasing of the organizations we rades-unions.

e organization of the trades is just as al and useful as the organization of professions. When we study the y or fortunate conditions of labor we ally go for examples to those pro- ns in which the conditions of labor singularly fortunate and happy, ly, to the learned, scientific, and artistic professions, to the ministers, lawyers, doctors, architects, engineers, and artists; and there we see that all those professions have each its own organization, and that this organization is highly useful and probably permanent. It is just so with regard to the trades-unions. They, too, will have the quality of permanence; because they are natural bandings together of men of the same calling, each desirous to promote the interests of his own calling.

So we need not imagine that anybody supposes, even, that the trades-unions are to cease to exist. On the contrary, they are surely permanent organizations of modern civilized Society. But in the view of many men, the unions, having had a fighting experience of more than a hundred years, in which their main object was to resist oppression and abuse, to enforce demands by violence whenever it was necessary — and it has been and still is generally necessary to use violence in order to compass their ends — having had this experience or history, naturally enough they have, our

of strife and war, developed evil policies and habitual courses of action inconsistent with the ordinary moral sense of civilized mankind; and have acquired habits and practices that have an unfortunate or evil effect on the unions themselves and their members.

The injurious practices which I propose to discuss, picking as I do among injurious practices only two or three, are practices which result in injuries not so much to Society at large, or to the national industries, or to employers in the national industries, as to the members of the unions themselves, who number perhaps two million workers in our own country, and many more millions in Europe.

It is necessary first to give a brief résumé of the progress of mankind in developing labor systems and industrial production. We are but a few years removed from the one industrial régime of all barbarous times, and until lately of all civilized, the one régime of Assyria, Egypt, Greece, and Rome, and of our own country in its southern part until 1865, and of South America until within a few years — the régime of slavery. All the old civilizations were firmly built on human slavery. The society which Plato described in his famous treatise, *The Republic*, was a society in which all the laboring class were slaves. The Roman Empire was built on human slavery, and an abominable kind of slavery, the slaves being in many cases people like the masters or owners. When the City of Athens sent out an expedition to punish the island of Mytilene, the army killed most of the male adults and carried off into slavery the remnant of the men and all the women and children — people like the Athenians in color, language, and race. Prisoners of war were then usually made slaves.

It is only the other day, as it were, that the human race in the civilized parts of the world — some of them not really civilized yet — was living under that régime. All the heavy and light labors of the world, or of Society, were performed by slaves. Here and there in the more advanced communities the payment of wages for service came into use — an immense improvement. Wage earners appeared as a new class. How did they diffe slaves? Very, very widely. In th place they had a right to their wiv children, which no slave ever has. next place, they had private pro things of their own, chattels both p and real. The wage-earner, havin property and family rights, gra achieved a good measure of libert regard to the disposition of his own ings, and of his own capacity for That liberty came third and s because there were many limitati the wage-earner's freedom. For ex he was not free to go about seeking Many restrictions were imposed b guilds, which were bands compo proprietors, journeymen, and appre organized to restrict freedom of mo and promotion among people of th trade.

An immense improvement in the mental industries and in the condi the laborers was wrought by the duction of the wage system. I kno sensational writers and orators dustrial subjects often allude no to wage-earners as wage-slaves; bu writers and speakers can have no c tion of what slavery really was.

And now we begin to see signs th wage-earning system lacks somethi modern Society needs; lacks son which the workers themselves nee I may add, have a right to. We ginning to see that satisfactory in progress is no longer possible un plain wage-earning system, and looking for a new and better metho

In the Declaration of Indepe there is one ever-memorable phr immense value: "All men are enti life, liberty, and the pursuit of happ

The nineteenth century witness nificant improvement in regard security of human life; although w more destructive than ever, and the of the United States exhibited a r able indifference to homicides an industrial and transportation ac The gain of the century in reg liberty for all sorts and conditions was enormous, primarily because development of democracy, but

because of the spread of new con-
ns in social ethics. During the
hundred years civilized men have
longer on the average and have been
than ever before. But have they
more successful in the "pursuit of
ness?"

e point I want to make here is that
are some practices of the labor unions
not only do not provide a good atmos-
, or give a good chance for the pursuit
ppiness, but actually make it im-
ble to win happiness in the daily
ng of the livelihood.

e first of these undesirable practices
uniform wage. Nobody can deny
the uniform wage is a very natural
me of the strife in which the labor
s have been engaged for a hundred
; but it is a most deplorable out-
because it takes away from a young
or indeed a man of any age, the
ive motive for improving or develop-
imself, for winning ever more skill
nore power not only as an artisan or
er, but as a human being. It is
ossible for a young carpenter to-day,
he becomes a member of a carpenters'
, to increase his earnings by himself
ving in skill, rapidity of work, or
vement in his trade. He is dependent
union for every advance in his wages.
ncrease of personal merit will add
er cent to his wages. The influence
s fact on his character and happiness
ost deplorable; and yet it is the
able effect of the uniform wage as
ibed by almost all unions. At any
it is a common result of the action
nost all unions. Happiness or con-
n earning his livelihood comes to an
gent and ambitious person only
gh constant improvement of himself
intelligence and a will. If the motive
reased earning power be taken away,
vement will not take place. There
ever been any time in my life when
uld have been willing to work under
orm wage system; and I have earned
ving ever since I was twenty years
To my thinking, the uniform wage
ys all chance of having a really
able or happy life in the earning of a
ood. The earning of the livelihood
will be done as a piece of drudgery, as an uninteresting routine labor without the reward of growing achievement or of conscious increase in personal skill and power.

This is the first of the union policies which seem to me injurious to the members themselves.

The second harmful policy is the intentional limitation of output. There are many different modes of regulating output in the various trades and unions of the country. Some of them involve the co-operation of the employers, and are directed to preventing over-production, as it is called, in the trade or industry in which both employers and employees are enlisted. That is not the kind of limitation to which I refer. Such a temporary reduction of output may be a united effort of both capital and labor, of employer and laborer, to prevent a glut of the market; and it may be desirable to prevent such glutting, because steadiness in an industry is intensely desirable both for employers and for employed.

It is of the limitation on the output of the individual workman, on the amount of work he shall do in an hour or a day, that I wish to speak. This occurs in many trades, and is enforced in a great variety of ways. For example, in the bricklayers' trade, the two slowest men will be put at the ends of the long chalked line to which the bricks are to be laid. Twenty men are on the line; but the two slowest men are put on the ends; for it is their function to lift the line for the next row of bricks. So the slowest men set the pace. "Don't put your trowel out of your hand. Don't stick it into the mortar tub, and so have two hands free with which to pick up two bricks from the stage. Hold your trowel in your hand all the time and then you will have only one hand free to pick up one brick at a time."

In the plumbers' trade, set only one article — one basin or one tub — in a day; that shall be the day's work for which a day's pay must be given. Work slowly enough to make that job seem to fill the day. It never does. I lately saw two coppersmiths fill up a whole day putting up a piece of conductor about twenty feet

long which had been made in the coppersmith's shop and was a good fit. That is the limitation of output. A glass-blower may blow so many bottles, vials, or retorts for a day's work; when he has blown that number he must quit, although he has not worked more than four or five hours. The limitation of output in the glass-blowers' trade in England was made so extreme that the entire business went over to Belgium where there was no such limitation. There are innumerable examples in our country of this sort of limitation in trades controlled by unions.

Now what is the moral effect of the limitation of output on the worker? He works in a slow, shiftless way, without energy, without spirit, without any intention of doing his best. There is not a man living who can work for twenty years in that spirit and preserve his self-respect; and self-respect is an indispensable element in happiness. There is no genuine happiness without it. Moreover, I cannot conceive of any man's being happy in his work who, day after day, never does his best. The workman of limited output never does his best, unless, indeed, he is so slow and awkward that he can barely reach the assigned limit.

I have had observation of men by the thousand practising the professions — lawyers, doctors, ministers, musicians, architects, engineers, foresters, a great variety of professions; and we know that the variety of learned and scientific professions has increased greatly in the last forty years. Now throughout those professions the men always feel that they have at least frequent opportunities of doing their level best at their work, and they would not be content and happy in their callings if they did not have those chances.

Another practice of the trades-unions seems to me to interfere very much with that pursuit of happiness to which the Declaration of Independence says every man is entitled. I refer to the extraordinary surrender of individual liberty to which all union men consent.

I firmly believe that the proper results of democracy in improving the condition of the human race are to be procured only through increase of liberty, and never by

its diminution. I
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ıexpected than the anticipated, but ; produces simultaneously or later sults which may outweigh the good. aterial advantages which the unions ;ained by a century of warfare are ıs; but the moral losses which have panied these gains are formidable, ı not so obvious. They account for revailing discontent and lack of ıess among all sorts of mechanics peratives.

ıve had opportunity to watch the ; of many thousands of young men, out into the world to run a life- , to earn a livelihood, and to win a life; and this is the clear conclusion ch I have arrived from these many ıf constant observation of the careers ıcated young men — their wages ıeir long or short hours have next hing to do with their success in the t of happiness. Given earnings ı to enable a man to bring up a in a healthy way, what he earns in and how many hours a day he have next to nothing to do with nan's happiness. I know it is a ɔn idea that only the rich are happy, ıly the men who can spend without nt on pleasures, so-called, that only re happy. This idea is an absolute ɔn, root and branch. Happiness out of personal achievement or al success in the use of personal ; happiness comes out of the family, me, the wife and children, the grand- n, and the great-grandchildren.

refore, when the unions impair the conditions of the lives of their ers, prevent their personal im- ıent and enlargement as life goes on, strict their liberty to work for wife ildren in order to better the family ons, they clog the real sources of happiness; and no increase of and no shorter hours will make up ıt loss. Hence the great need that ɜmbers of the unions themselves go k inside their unions to stop these us policies, grown out of the pro- state of warfare, while they were ing for more pay and more con- ion. That is the reform which is ırgent in our country at this moment, reform within the unions themselves.

There are many signs that union members are taking these things to heart. Over and over again I have been told by union men, first, that they were forced into their union on the occasion of a strike or a lockout. Secondly, that they stayed in only because they feared they could not get a job, or could not keep a job when they got one, unless they were members of the union. Many working men find some relief in the union from the sickening dread of having no job. And, lastly, many men stay in unions because, having paid for twenty years or more the assessments for the benefits the unions give — death benefits and sickness benefits — they do not feel that they can sacrifice all the money they had paid for these benefits, as they would have to do if they left the union. That, by the way, is a hold the unions have upon their members which does not conform to the laws governing insurance companies. The man who ceases to pay the premium on his life insurance, after having paid it regularly for some years, cannot legally be made to sacrifice all that he has paid in because he ceases to pay. His policy has a surrender value. The unions use their sickness and death benefits as means of holding dissatisfied members, and of enforcing the payment of fines.

Many members of unions feel keenly the deprivations of liberty that they suffer. I have noticed a common phenomenon with regard to labor leaders: they have tremendous authority over union members, but it is a curious thing to see how little the members trust them. Over and over again I have seen that a union labor-leader going to an interview of importance — some collective bargaining perhaps, or some discussion of the means of settling a strike — and, indeed, in some instances, just going to lecture before a mixed audience — is usually accompanied by witnesses, and rarely trusted alone.

Now these are symptoms of an approaching change. It is a change that our dear country very much needs; it is a change which democratic society needs; and, moreover, it is a change that would be

welcomed by a great majority of the men who now belong to unions.

But there is a still more important indication of a coming change. It is the rapid extension of the method called profit-sharing; and the advantage of profit-sharing is that it goes to the roots of the whole industrial warfare.

There are many other expedients—like scientific management, for example—for increasing the efficiency of men at work, and incidentally increasing their earnings. But such things do not go to the root of the matter. Welfare work is often serviceable; but it does not go to the root of the matter; it seems to the workman to be a kind of charity, a charity which redounds to the advantage of the employer—as indeed it does. But profit-sharing goes right to the root of the whole matter; for it presents to the working man exactly the same motive for strenuous, zealous, loyal labor, day in and day out, for stopping wastes and preventing stealings, that the owner or the manager feels; precisely the same motive to the same end, namely, that by careful, frugal, honest work a profit may be created which all concerned in its creation may share on equitable terms.

It is an encouraging sign that labor leaders are unanimously opposed to profit-sharing. That is one of the best signs I see. The rank and file of the unions have the strongest inducement to get at all there is in profit-sharing, to promote it, and to encourage experiments with it in great variety. It is a coöperative partnership between capital and labor; and that is the way out of the industrial strife in which the manufacturing countries have been involved for more than a century.

ANSWERS TO QUESTIONS ASKED AT THE END OF THE FOREGOING DISCUSSION BY DR. ELIOT

Question:

Is it possible that a man's environment has anything to do with the forming, solidifying, and crystallizing of his opinions?

DR. ELIOT:

Environment has much to do with the formation of opinions—indeed, there is only one thing that has more, namely, *heredity*. But between them, heredity and environment, not only are o formed, but character—charact most potent force in the wo politics, in industry, in human d ment as a whole. That is the ans the immediate question; but it lo me as if the asker of the question h argument behind it, and I should l say something about that argument.

In the first place the question su to me—and perhaps to the audie that my environment has been such I cannot form intelligent opinions o subject. Now that is a somewhat sonal matter; but I take leave to s few words about my environment; I do not mean to imply by this state that the question is irrelevant.

I was born of parents both of whom herited a considerable property, for t days, from their fathers; and these fa were men who themselves made al money of which they died posse having started, both of them, from a s of downright poverty. But I didn't herit any of that money from my pa Not a dollar. Why? Because the tunes of my father and mother wer completely in the panic of 1857, wh was twenty-three years old. Then I did not suffer in youth the disast having in prospect a life of assured I was not able constitutionally to li ease without working—to be sure I not wish to—and I think it is com say that I have worked ever since I twenty years old with constancy, and loyalty. I have had plenty of o tunities to do the very best work I capable of; and I have never been out the sense that by working hard o particular job in hand at the mom could gain personal force, and pow influence, and enjoy the process: when I say that there is no such thi happiness in work without doing best from time to time, and nearly a time, and without a sense of loyal one's profession or employer, or t institution one works for, I speak personal experience through fort years of hard work for Harvard Univ and I know what I am talking And I know further that my exp

apply to every man and woman
ɔom, and to every union member
ountry. It is just because mem-
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ıd because of the fact that he has
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ɔT:
question, of course, relates very
to the greatest difficulty in
ıdustry, namely, that it is regu-
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iler and run your machines so
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is one other difficulty suggested
question: namely, that the in-
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hion. With us, the human being
in our mechanical industries
g like a cog on a cog-wheel.
ıswer to the question, "Why not
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lay, if he wishes to?" is that it is
e in the machinery industries.
ıt be done. In the continuous
s the manager must work all his
quads, eight hours a day, in three
, as I saw in Japan, twelve hours
ith three twenty-minute periods
t, and only two shifts, one night
shift and one day shift, and those two shifts changing places every week. The operatives whom I saw working thus in Japan were young women.

Whenever men or women must work together in large groups, as they do in every considerable factory, it is the average strength and zeal in the group which must determine the expedient period of work per day or per week, and not the strength or wish of exceptional individuals.

It is the machine quality of many modern industries, and the minute division of labor in producing one article or object, that actually prevent freedom for the individual with regard to the number of hours a day he may work. Therefore, in many industries it is impossible for the workers to enjoy the measure of liberty which prevails in all learned, scientific, and artistic professions. This is a great misfortune, and a condition of things against which every employer should struggle in order that uniformity of service should be done away with in so far as it is possible, and in order that the monotony of machine tending should be broken — in short, that more personal freedom for the operative should be brought into such industries. We have to recognize this condition of things, a condition brought about by the introduction of steam and electricity, those remarkable additions to the power of man over Nature. They have made possible many things that are good for the human race. They have also introduced these great difficulties into almost all the national industries.

When I was in the East the other day, I saw countries where almost all the labor is hand-work, including even transportation. Human muscle does all the transporting of passengers and goods in China at this moment, except on about 5,000 miles of railway, and in a few ports where machinery has been introduced to a small extent. That method of labor really gives more variety and freedom to the laborer than machinery industries can give; but it is too slow and ineffective to satisfy the demands of modern production, transportation, and commerce.

I think the question also, perhaps, sug-

gests another answer, namely, that eighteen hours a day in the modern industries is excessive as regards health. The regulation of the hours of labor in the interest of the community applies chiefly to those industries which are connected with the machine; and Society is obliged to resort to these limiting laws for the sake of conserving the health of the community. Most of the laws limiting the hours of labor have that consideration behind them, notably the recent laws regulating the number of hours of women's labor and of child labor — very beneficent laws. In none of the liberal professions, as they are called, is there any regulation of the number of hours of work — none at all. Your physicians here in Brockton probably work twelve or fourteen hours a day. A lawyer works by spasms with great industry. He does not work all the time. As to an artist, a designer of any sort, or an inventor, there is no limit to the amount of his personal labor. He would not have any. There is an individual freedom possible in hand-work and in professional labor which those who work under the factory system cannot now secure.

Question:

The unions have succeeded in raising the wages in many trades, and, in consequence, the consumer has to pay more than he otherwise would have had to pay for what he needs to consume; and this is a broad public injury, whereas the union men, a much more limited number of people, have gained something at the expense of the whole.

DR. ELIOT:

That introduces a very difficult subject; because the statement presents the contrast between the advantages trades-unions derive from their forced-up wages and the resulting deprivations of the community. There is a great deal of truth in that suggestion. I see it very strongly in my own city of Cambridge, where the average family for which the bread-winner earns from twenty to thirty dollars a week — and that, you know, is a common condition — has been forced into lodgings much more contracted than simil occupied forty years ago. The f ordinary American family from single cottage with a garden do seven-room flat is a very serious indeed. It is an immediate cons of the exaggerated wages in the trades. I was lately talking choresman in Cambridge who had just that decline, had once owned house and garden, but had been into a six-room flat. He has four c He said to me, "I could not afford in my house; I had to sell it." did you have to sell it?" "For t sons," he said: "first, high tax secondly, I could not afford to hire to make repairs on my house when were absolutely necessary. The ca charged sixty cents an hour; the p with his helper wanted seven o dollars a day; the mason or pl even more; and the painter alm much. I had to crowd my family flat of six rooms — and we have l garden."

That is a short story, but it is r over and over again by millions of in our country at this moment. Th age American family, earning from to thirty dollars a week, has lost it and garden, a serious loss as regard ness and content, particularly for and children. This is a straight quence of the trades-unions' polici building trades and the subsidiary

I had occasion to study the orga of a company called "The T Society," which built a large nu houses in a part of East Londo Ealing, on a tract which was o about forty-seven acres, but later, purchases, became nearly eight It was such an admirable arra that I could not help asking mysel can't we do something of this sor country?" The houses were a pendent, every house had a gard and 10 per cent. of the whole a devoted to little parks — a sort door parlor — and playgrounds, dition to all the areas covered streets and alleys. I soon found we could not do likewise. Al

' houses were built of brick
l roofs; but I found the price
Ealing was only one-third of the
rick in New England to-day.
nly the building trades, but all
that supply building materials,
y controlled by unions, that
ted this injury on the bulk of
and suburban populations in
States.

; no answer to the question
just asked except that we must
means of coöperative partner-
profit-sharing in the building
all the subsidiary trades, to
eaper products with the hearty
ı of both capital and labor;
e shall be able to return to the
practice of putting one family
use with a piece of open ground

ike to ask the Doctor if he ever
es in the matter of unions, and
ke to ask him if with all the
imperfections and defects that
he Boot and Shoe Workers'
d they are many — I am a
that union, and its faults are
ıt I would like to ask him if
or any organization of men and
ıt holds within its policies the
arbitration, anything that will
industrial war, anything that
bout perpetual industrial peace,
lessing upon this or any com-
roughout the civilized world?

:

t is very clear to all of us that
ıtion method is an enormous
nt upon open war. Arbitra-
en nations would be a great
nt upon international war if
lways get it in season; but for
shment of industrial peace it
ıe that arbitration affords but
e. It is better than fighting;
ıs I have been able to see during
rty years, arbitration merely
revention of the interruption of
or a time. To be sure, that is
lvantage for the time being.
mely inconvenient to have a
transportation industry interrupted, for instance, whether steam railway, electric railway, or steamboat; and arbitration can often prevent, or at least postpone, such inconveniences for the public.

But industrial arbitration on the whole results the world over in only a temporary truce between the contending parties. Arbitrations almost invariably lead to some small grant to one or other of the two parties. The result — a compromise — is not satisfactory to either party; but the truce is established. Nowadays, that truce does not last more than six months or a year — a year is a long time for a truce. Then comes another dispute, submitted to another arbitration, with a similar result. Now the cure that we long for must deal with the fundamental moral questions, and must not rest on temporary scales of prices or of wages, or on shortened hours. It must get at the moral roots of the industrial warfare.

Question:

I will state my question first, and explain it afterward. How much out of the eighty cents an hour you paid that plumber went to the men who did the work, and how much to the man who exploited the labor of the man who did the work? I ask that question because the high cost of living has been put upon the people, according to the Professor, by the acts of the trades-unions in raising the wages. The answer to my question will probably show it to be due to exploitation by the capitalist class, and not to increase of wages of the working class.

Dr. Eliot:

I have not the statistics at hand to fully answer this question. It is a perfectly fair one. In the particular cases to which I referred, the profits of the employers of the mechanics were extremely modest. The employer or boss of the plumbers, for example, got a small fraction of the day's wages of the plumber and his helper. He probably got also a small profit on the materials he furnished. In the building trades, so far as I have read, the rise in the wages of the journeymen — excluding the charges of the contractor — greatly

exceeds the rise in the cost of living. There are other trades in which wages have not kept pace with the cost of living; but in the building trades they have — with a large excess. That is illustrated in the experience not only of many persons here, but also of inhabitants of most Massachusetts cities and towns. It is the occupant or owner of the new building that pays this additional cost of construction, and transfers it to his tenant.

I must hasten to say, however, that there is another large part of the total community's work in which there has been a great increase of charges which contributes much to the cost of living; I mean the part concerned with distribution — the charges for interest on capital, storage, and delivery, made by the retail dealer over and above what he pays the producer or the jobber. There has been a great advance in the cost of delivery especially, and, therefore, in the charges for distribution. I believe that this advance in cost is considerably due to changes in the habits of consumers of all classes. I know that in Cambridge all sorts of people will go into a shop to buy meat, vegetables, fruit, or groceries, give a small order, and never think of carrying anything home; on the contrary, they expect that the articles purchased will be delivered within a few hours at their homes miles away. Orders by telephone to retail dealers make the same assumption. The milk delivery in Cambridge at this moment is shockingly wasteful; because twenty or thirty milk dealers drive all over Cambridge, each delivering milk at widely scattered houses within the city's area — a great waste of time and labor of both men and beasts.

There are, therefore, a good many explanations to be given when comparisons are made between the higher wages and the higher cost of living of the last fifteen years.

Question:

Who has a chance for a happier life, the limited union printer with his limited number of hours to work and his better wages, or the unorganized steel-worker with so many hours of labor that he cannot see his wife, his children, or his gran either?

Dr. Eliot:

This question intimates, as I un it, that a printer who works or hours a day has for that reason chance of having a happy life tha worker who works twelve. Has non-union steel-worker, it asks, chance of winning happiness t printer who works under union r

I should think that the eight-ho printer had a better chance of h than the twelve-hour-a-day steel but not alone because he works fo a day less than the other, but while he works, his occupation interesting and less fatiguing, a more variety and progressive ins With regard to the twelve-ho worker, I should want to know wh reducing his number of hours to was going to win during his eig more intellectual interest, more and more chance to excel. The from my observation of the trad good chance to excel, to do bet year, and to satisfy his own achievement and his own re ambition; but I have known uni ers at eight hours a day who scantiest chances of winning h because they worked in a wretch

Of course, nobody can be con and happy in his job if it dema muscular exertion than is good physically. Yet a vigorous man i very seldom, hurt by work, even we should call excessive work, interested in it, if he sees that he i from it something which appeals The trouble with a great numb dustries, as they are now carried o the work of each day is dull, re and uninstructive, and the workn not see that he is going to get o labors an advantage which appeal namely, that fair proportion of th of the total works, which he wa can make a good use of in his far

I have thus indicated some of th I should want to know before decide whether the eight-hour pr

the twelve-hour steel-worker had the better chances in his pursuit of happiness. I should want to see which man put the most life, energy, and ambition into his work. Interest, zeal, and loyalty have much more to do with winning happiness through the daily work than the length of the working day. The notion that if one could only cut down or stop work one would be happy, is fit only for a lazy savage.

THE NEW CITY OF BALTIMORE

THE HUNDREDTH ANNIVERSARY OF THE WRITING OF THE "STAR SPANGLED BANNER" AND THE TENTH ANNIVERSARY OF THE GREAT FIRE THAT CHANGED BALTIMORE FROM "THE LARGEST VILLAGE ON EARTH" TO A CITY THAT IS DOING BIG THINGS

BY

JOHN WILBER JENKINS

THE visitor to the Star Spangled Banner Centennial, which celebrated the repulse of the British at Fort McHenry and North Point and the writing of the national anthem by Francis Scott Key, found that out of the old Baltimore has grown a new city — new in spirit as well as in its buildings, streets, parks, sewers, and docks.

It was the great fire of February 7 and 8, 1904, that stirred up the ancient town. For a generation it had been going along in its slow and steady way, growing surely but gradually, but in many important respects it was far behind cities not half its size. When the flames died down Monday night after blazing fiercely since eleven o'clock Sunday morning, the citizens saw the heart of the business district in ruins, 2,200 buildings in ashes, and more than $100,000,000 worth of property destroyed. But Baltimore declined the help from New York and a dozen other financial centres so generously offered, and began the work of rebuilding with its own resources.

And it was a stupendous task that Baltimore began ten years ago. A Burnt District Commission was created and began to lay out new street lines downtown in the place of the old streets which were narrow and badly congested. Light Street, which runs from Baltimore Street along the wharves where the Chesapeake Bay steamers land, was transformed from a narrow 45-foot bed to a broad thoroughfare 125 feet wide. Pratt Street was widened from 66 to 120 feet, relieving the congestion caused by the thousands of teams and cars that handle the traffic to wharves from which steamers sail for Boston, Savannah, Jacksonville, and the West Indies. What had been a mere gorge in front of the classic Court House was broadened into a plaza. South Charles Street, Hanover, Hopkins Place, Calvert, Commerce, and Lombard Streets and West Falls Avenue were all widened. Old Marsh Market Place was turned into a large plaza, and immense wholesale and retail markets for the handling of oysters, fish, fruit, and produce were built, stretching in a long line almost from Baltimore Street to the water front. On the new and wider streets grew new and better buildings. The fire that seemed the most terrible of calamities proved a blessing in disguise, for it forced the creation of an entirely new district, and the downtown section of Baltimore has to-day more new buildings than are in a similar area in any other city in the United States except San Francisco.

But it did more than that. It compelled merchants in other sections to modernize their stores and warehouses to keep pace with those in the "Burnt District," and this has resulted in improvement all over the city. With its new busi-

ness centre, Baltimore became ashamed of its open sewers and cobblestone pavements, of its old docks and wharves and narrow streets, and while it was rebuilding its business district it set about to make other large improvements.

CITY-OWNED PIERS

The long stretch of docks and wharves were owned by railroad or steamship corporations which had the power to levy toll on commerce or shut out new steamship lines. The city decided to spend $6,000,000 in acquiring sections of the waterfront and beginning a system of municipally owned piers. The first modern piers constructed of steel and concrete proved so successful that $5,000,000 more were voted to be spent in terminals, and now the city owns 17 per cent. of the dock space in the port and is looking forward to the day when it will have a $50,000,000 system of docks and wharves owned and controlled by the city itself though leased to various steamship and railroad lines. The big recreation pier at the foot of Broadway, just completed and opened last July, combines facilities for steamers and smaller boats with immense floors for dancing and playgrounds, all free to the public. It is in the midst of a congested district, and sometimes as many as 20,000 persons take advantage of it in a single day and night. The latest report of the United States Army Engineers to Congress shows that Baltimore now has 152 docks and wharves, 18 miles of available waterfront in the city and an almost unlimited amount farther down toward the Bay, has 34 regular steamship lines and 1,300 craft engaged in the coastwise and Chesapeake Bay trade.

Preparing for the Panama Canal trade — and Baltimore claims that with lower railroad rates than any other Eastern city and three great trunk lines it is the port through which the traffic of the Middle West will naturally flow to the Canal — large docks and terminals are being erected on both sides of the harbor that will accommodate big ocean liners. The Canton Company is completing the first of a series of concrete piers and warehouses, is building factories and warehouses for various new industries, and is creating an industrial and com city that will eventually stretch f old Lazaretto lighthouse to Rive Mr. Colin McLean and the McLe struction Company are preparing a series of big wharves on th side of the harbor near the Locu docks, where the North Germa steamers from Bremen now lan North German Lloyd has on th several large steamers which will completed and put into service Baltimore and German ports.

A CHANNEL FOR THE BIGGEST

But there is a feeling that thi sufficient, and that more must be provide for the Panama trad United States Government not l completed the years of dredging t Baltimore a channel 35 feet deep tide and 600 feet wide. But ei city or waterfront owners must to a depth of 35 feet from the main to the piers before the steamers no ing can reach their wharves. T be done within the next year, the Company having already begun t for its new pier.

There was no street worth th running parallel with the long line from Light Street to Locust Poin the steamers from Europe lan passengers and cargoes. So the cut a street 160 feet wide fro Street to Locust Point, curvin this stretch of harbor, and has n "Key Highway," for it will ev be extended to Fort McHenry, fro floated the Star Spangled Bann inspired Francis Scott Key to w immortal song. The War Dep has just turned Fort McHenry ove city for preservation and use as a park, and at the edge of the Fort beginning on the new Immigrati tion that will cost $550,000 and for thousands of immigrants that la

Baltimore was a century behin ern cities in sanitation. Though ter class residences and business were provided for by privately systems, there were 70,000 earth and hundreds of miles of open

ıcing health. Typhoid fever de-
'ed its hundreds. After the fire the
-postponed resolve to build a real
rage system was put into effect. A
of $10,000,000 was voted and a com-
ion created, which selected Mr. Calvin
Hendrick as chief engineer, and within
years after the fire active work was
n. As Mr. Hendrick told a convention
ıgineers the task was to "do a hun-
years of work in seven years."

$30,000,000 FOR NEW SEWERS

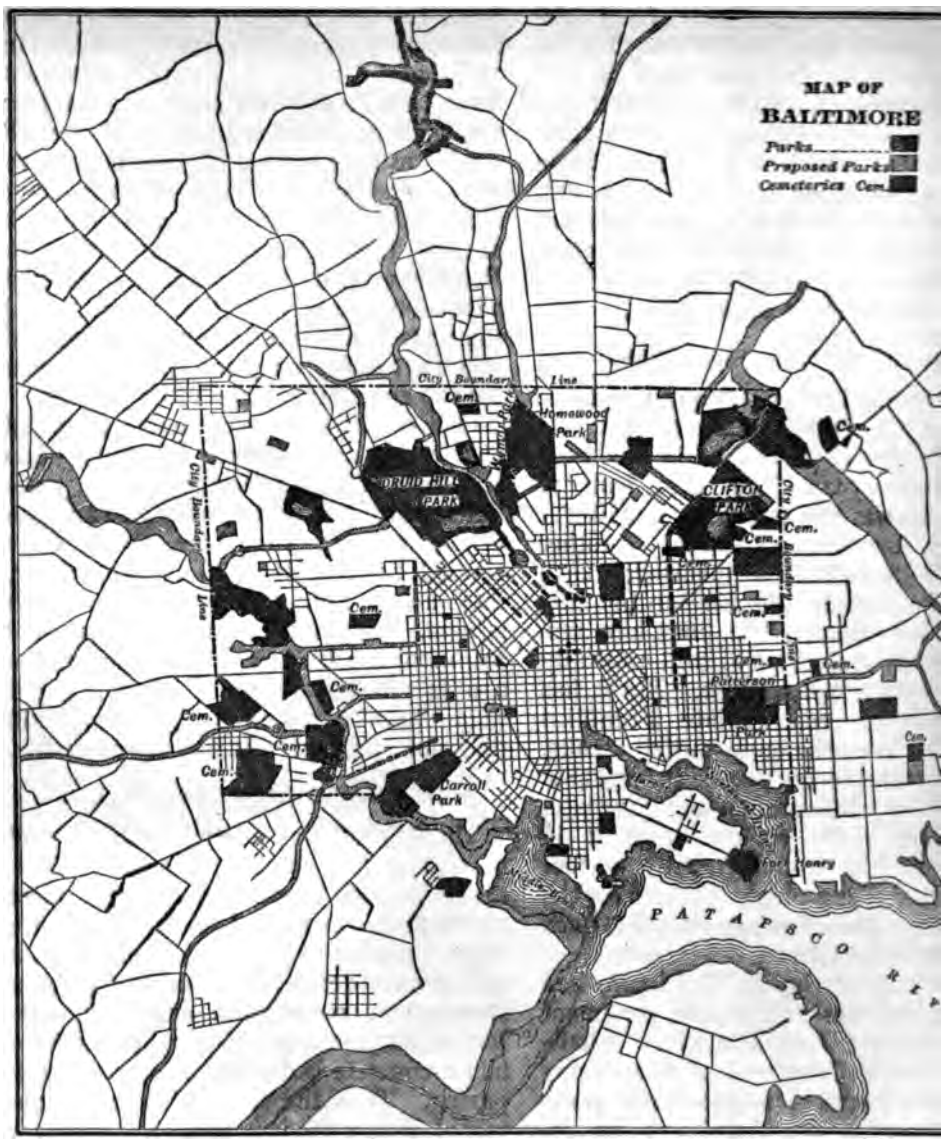
ven hundred miles of pipes had to be
under buildings and streets. At
s the rate of construction has been
miles a year. The first loan of
)00,000 was not sufficient to bring it
way toward completion. Another
of $10,000,000 followed; then
)0,000 more to provide for the new
ential sections. The complete sys-
for city and suburbs will probably
as much as $30,000,000. But it has
built to accommodate a million
ents. The immense outfall sewer,
ınd one half miles long, is so large that
ıeir tour of inspection the governor,
)r, and party rode through it in
mobiles, the 20-foot breadth, 12 feet
ıe base, giving plenty of room for the
ır-cars. The disposal plant at Back
r covers forty acres.

the time of the fire Baltimore had
: cobblestones and rough pavement
any other American city. Chair-
R. Keith Compton, of the Paving
mission, found 5,000,000 square yards
obblestones, "enough," as he re-
:ed, "to make an 18-foot road nearly
ıundred miles long." There were many
; of Belgian blocks and nondescript
h stone pavements, and streets that
hardly paved at all. So when the
rage system was well under way,
more started work on "the biggest
ıg job on earth." The city is now
g smooth paving at the rate of ten
; a month, and the pavers are at work
wenty streets at the same time. In
)usiness section, where street cars and
:s crowd in an almost continuous line,
paving has been done by the block
)ut interrupting traffic. Asphalt is
used, for the most part, though stone is
necessary on heavy teaming streets. In
the suburbs, miles of bitulithic pavement
have been laid. The cost runs far into
the millions, but the people pay the bill
gladly, as they can see the results at every
step. The county and suburbs have
followed the city's example, and even such
ancient thoroughfares as the old York
Road have had their mudholes replaced
with a surface as smooth as a floor. And
the state is constructing an extensive sys-
tem that will soon place Maryland near
the top among the "good roads" states.

One of the most remarkable pieces of
engineering accomplished in recent years
has been the transformation of Jones
Falls, which had degenerated into an open
sewer, running from the north clear
through the city down to the waterfront,
into a splendid concrete street. That
stream, with its frequent floods, had
caused so much damage that a generation
ago $2,000,000 was spent in confining it
with stone retaining walls, which still
did not prevent occasional overflows.

A BOULEVARD MADE FROM A SEWER

The "Falls" was an offense to eyes and
nostrils and a constant menace. Engi-
neer Hendrick found it one of the most
trying problems he had to deal with. He
devised a plan to force the stream into a
huge concrete pipe, lay another pipe as a
storm-water sewer, and others to care
for ordinary sewage. Over this has been
laid a concrete bed which is covered with
paving. Thus the stream has been con-
verted into a modern highway, giving a
new boulevard from Union Station down
to Baltimore Street, the "Fallsway."
To lift the street from Jones Falls Valley
to the level of Mount Royal Avenue it
was necessary to construct a huge viaduct
which gives an easy ascent. The drainage
tunnel, seventy-one feet below the surface
of Guilford Avenue, is so large that on
June 4th the entire American Society of
Civil Engineers was entertained at a
banquet in the 29-foot tube. The last
section of the Fallsway is just being com-
pleted. The entire cost of the improve-
ment is not much more than the $2,000,000
that was spent on the old retaining walls.



A CITY SURROUNDED BY PARKS

WHEN THE EXTENSIONS THAT ARE NOW UNDER WAY TO COMPLETE THE ALREADY REMARKABLE PARKS OF BALTIMORE ARE FINISHED THAT PHRASE WILL BE LITERALLY ACCURATE

At the time the fire occurred, Mr. Frederick Law Olmsted and his staff had just completed the survey and report which they made to the Municipal Art Society and in which they outlined a plan to develop a vast park system, linking the existing parks by boulevards, and to acquire the most beautiful tracts and streams in the suburbs. Away back in 1859, when the first horse-car lines were started, astute aldermen required them to contribute 20 per cent. of thei to maintain the parks, then j created. This percentage was f high, but it was not reduced u when it was placed at 12 per cen the various electric lines wer into the United Railways, whicl city and suburban lines, the tax for the older lines at 9 per cen the less profitable suburban lin as 2 to 3 per cent. This tax

ly increasing revenue, which can ed only to parks and boulevards. · Richard M. Venable, president ³ark Board, a leading lawyer, a vision, began at once to put the plan into effect. Gwynns Falls, resents a wonderful combination ills and limpid water, had been acnd was converted into five miles of tiful a natural park as any city s. Wyman Park, on Charles just in front of the new Johns campus, and numerous other pots were included in the system. Street in that section was conto the Parkway, a broad boulehh double drives. All around and it is growing up one of the finest al sections in the country.

e hills beyond Wyman Park are e new buildings of Johns Hopkins ty. From the Hopkins University man Park a boulevard stretches east, running through the new Park to Montebello. There will 'eway to Clifton Park; and, a few ›elow, the boulevarded Broad:s an attractive drive to the large n Park in the southern section. vest the boulevard runs to Druid ·k and from that point will be through the Mount Alto and ark section to Gwynns Falls Park, ıns far into the southwest. So ım of Venable and Olmsted of a parks and boulevards around the ty is becoming a reality. And it the taxpayers hardly anything, ıid for by the tax on the street ·m that benefits from it.

Rev. Dr. Thomas M. Beadenkoff erected his first little "shack" und of only $500 back of it, he ·amed that it would develop into nsive system of public baths. e now has five indoor cleansing ith 200 cabins, which accommo›,000 persons a year; five large g pools in parks and on the river which many thousands resort in and a system of portable baths iginated here, small houses which ied from one street corner to n the crowded sections and afford hot and cold shower baths for 75,000 persons every year. With the recent addition of four acres, the pool in Patterson Park is probably the largest enclosed swimming pool in the world. Mr. Henry Walters has erected and endowed a series of public baths. In addition there are a number of "wash houses," where women who have no servants bring their laundry and wash their clothes.

A CITY WITH FEW SLUMS

With all its improvements Baltimore has maintained perhaps its chief, if its least spectacular, virtue. It is still essentially a city of homes, for those who dwell in apartments form a very small percentage of the population, and tenements are few. There are hundreds of blocks of little one-family houses in Baltimore. These "two-story houses," as they are called, though they make many streets long stretches of monotony, provide decent and comfortable homes for wage earners. For $15 or $20 a month a man can have his own house, of six or eight rooms, with bath, and often with stationary wash tubs, cemented cellars, and conveniences that in other cities the poor cannot hope for. He can buy that house on partial payments by adding $5 a month to his rent money. In some sections, like Highlandtown and Canton, rents are as low as $10 a month. He can take his basket and go to Lexington or one of the other big markets and get his meats, vegetables, fruits, and entire food supply for less than in almost any other city, for here at the head of the Chesapeake is the heart of the trucking and canning section. All kinds of vegetables, fruits, oysters, fish, and crabs are abundant, and the menu is varied. These two-story houses are built steadily at the rate of two thousand a year, and perhaps half as many more go up in the outlying districts. Tenements cannot compete with them — in price plus desirability.

Many people went to Baltimore to celebrate the one hundredth anniversary of the writing of the national song; the glory of this they all felt. What they saw was the remarkable work that marks the tenth anniversary of the great fire that awakened Baltimore.

FLESH THAT IS IMM

DR. ALEXIS CARREL'S EXPERIMENTS WITH TISSUE OF
HAS DEMONSTRATED THAT THE CELLS WHICH COM
OLD" AND "DIE" FROM A POISON WHICH THEY
ERATE, AND THAT SUCH CELLS CAN BE KEPT
—WHAT THIS DISCOVERY MAY MEAN TO H

BY

JAMES MIDDLETON

THE proposed celebration in Paris of the birthday of Mr. Elie Metchnikoff, the most famous of the pupils of Pasteur, comes at an opportune moment. Probably no medical scientist since Pasteur himself has impressed so strongly the popular mind. This is because, in recent years, Professor Metchnikoff has given his entire attention to the scientific problem which has the greatest human appeal. What is the cause of old age? Why should the human body and human spirit not remain eternally young? Why should we ever die? Is death inevitable, something inherent in the body structure, or is it merely an avoidable accident? Is an elixir of youth merely a dream of romancers and poets or something which cold-blooded science itself may some day make a reality? That one of the greatest scientists of the time should discuss questions of this kind is certainly a remarkable fact; a more startling fact is that recent developments in scientific laboratories should support some of Metchnikoff's most daring ideas.

Thus, simultaneously with the announced intention to render scientific homage to Metchnikoff's career, the Rockefeller Institute has published a short paper by Alexis Carrel, which sheds light upon one of his fundamental theories. The casual reader would probably make little of Dr. Carrel's paper. It is only about one page and a half long. It discusses so apparently uninteresting a subject as the growth, outside the body, of minute specimens of chicken tissue. These two pages, however, when clearly understood, have the

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They are the consequences of ts that are made upon the human ism by outside forces; they are not arily inherent in the organism itself. mbing to an onslaught of an express going sixty miles an hour and to an ight of the invading microbes of is or tuberculosis represent takings f virtually the same character. are cases of "accidental" death. cally all deaths that fall under an day observation belong to this class. struggles are apparently nearly all external enemies — the most numerid persistent being micro-organisms.

WHAT CAUSES DEATH?

posing, however, that we live the ed span and still escape disease. seems no possibility that we shall death. Certain degenerations even set in as we get older; the hair is, the skin shrivels up, the muscular n loses its agility, the bones become , the blood courses less actively gh the veins. So far as the experts ll, we have no specific disease; the on explanation is that we are getting Finally, after a period of senility, eart stops beating and we die — y quietly and painlessly. Still there signs of disease, or "accidental" ; again the popular diagnosis is h from old age." This gradual ing of the grip, this slow disinion of vital forces, is what the ists call "natural death." It is ly death itself, as the other forms, entirely escapable and fortuitous, ardly be regarded as such. This l death is extremely rare; there are who maintain that it never takes that all deaths are caused by disind are therefore accidental. The reputable expert opinion, however, now and then there is a death that described as "natural."

e, then, the extinguishing dart comes within, not from without; irrespec- the daily enemies in whose presence nstantly move, there is something ourselves that necessarily dooms destruction. What, then, is this rious force? The theologian and philosopher find little difficulty in the problem. Death is necessarily the complement of life; there is the death principle, just as there is the life principle. Birth, maturity, decay, and extinction merely represent the orderly cycle of existence; it is as fixed as the revolution of the planets or the course of the seasons. But the scientist, especially the materialistic scientist, accepts no such explanation. Death to him is not merely a phrase, an abstraction, a "principle"; it is a physical fact. Being a physical fact, it must have a physical explanation. Physical degeneration and decay do not take place of themselves; there is some cause, which must be as palpable as the microbe that produces contagious disease.

Metchnikoff in particular has speculated much upon this cause. In a large majority of cases he believes that senility is the effect of poisons that are manufactured in the large intestine from the waste products of food. He advocates counteracting their effect by drinking certain kinds of sour milk; the reason being that this sour milk contains, in enormous numbers, certain bacilli that can destroy the poisons so accumulated. The popular mind mainly associates Metchnikoff's name with this ingenious and picturesque idea. This explanation of senility and death clearly changes the situation again and makes it "accidental"; the body so afflicted with intestinal poisons, that is, must be in a state of disease.

"NATURAL" DEATH A SELF-POISONING

However, Metchnikoff believes that death — and this is the important point in the present discussion — takes place in other ways, that it is occasionally "natural." His theory, to which I have referred at the beginning of this article, is that the cells of which the body is composed, irrespective of any other influence, manufacture certain poisonous products that ultimately destroy them. The cells are constantly breaking down and constantly being replaced; in this process certain toxins, or poisons, are produced which are antagonistic to life. "Natural death," in other words, is a kind of unconscious suicide. This explanation,

which, as already said, the great Russian advanced merely as a theory, seemingly disposes of death as something inevitable. If, in some way, the human frame could rid itself of these poisons, there would clearly be no such thing as death. If we could escape violent accidents and insidious disease, there would apparently be no reason why we should not live forever. The elixir of life would be the agent that could free the cells from the poisons which they are constantly producing.

DR. CARREL'S ASTOUNDING DISCOVERY

About three years ago Dr. Alexis Carrel, the young French investigator of the Rockefeller Institute, began work upon the experiments that were destined to shed much light upon this question. From time to time a good deal has found its way into popular print about these studies. As a result of his latest communication, however, we can make positive statements concerning a matter that has hitherto been undecided. Dr. Carrel has found his material in small specimens of chicken tissue. The thing that greatly impressed the popular imagination was that he could make this tissue grow outside the body. By keeping it in an incubator at body temperature and by supplying it with food — certain parts of chicken blood — this chicken tissue grew quite as vigorously as when it formed a part of the living animal. A segment of chicken heart behaved in sensational fashion: when placed upon the microscopic slide it began to pulsate rhythmically like the heart itself; one piece kept beating uninterruptedly for 104 days. Cells growing outside of the body, Dr. Carrel soon observed, behaved just about the same as the cells within. For example, the younger the animal, the more rapidly its tissues grow; Dr. Carrel found that this was likewise true of his specimens. Cells taken from an embryonic chick multiplied with the utmost rapidity; bone tissue taken from a superannuated dog grew sluggishly. More interesting still, these cells under the microscope developed in a regular life cycle, just like that of the body from which they were taken. They had their period of babyhood, of youth,

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t be freed from these disintegrating ances? Dr. Carrel found his elixir e in a commonplace laboratory sub- e known as Ringer's solution. He his experimental cells, when they clearly approaching death, "washed" in this liquid, and then placed them new and fresh medium. These ges produced the most amazing re- They apparently restored to the the vitality of youth. For, feebly ring with life as they had been before, now started growing with all the iance of babyhood. And once more repeated the life cycle. They at- d a lusty youth, reached a full rity, then again became senile — ed with death. Just before they ed, however, Dr. Carrel again dipped in Ringer's solution and placed them fresh medium. Once more all signs ge disappeared; the cells became g again and enacted precisely the cycle. For the last three years Dr. l has been repeating this process. as old age appears, he gives his a bath and rejuvenates it. He that there is no limit to the times that n do this. Thus far his specimen erformed the life cycle and prepared xpire 358 times; Dr. Carrel has hed it from the jaws of death and ed its youth just the same number nes.

THE FIRST IMMORTAL TISSUES

a result, he is now able to make a lent announcement: So far as these idual cells are concerned, he has oyed the great destroyer. Death hem simply does not exist. So long hey are submitted to this simple nent, these specimens of animal will live forever. For the first since scientists began investigating e's secrets, immortality is an es- hed fact. "This piece of chick," Dr. Carrel, "is no longer subject to influence of time. If we exclude accidents, connective tissue cells may grow indefinitely." Nor is there any great mystery in what has happened. The "baths" that he has given the cells have destroyed something that would have k d them. Metchnikoff was right: "natural death" in animals is caused by certain poisons which the cells secrete themselves. Seldom in the history of medicine has a brilliant scientific generalization been so quickly substantiated by an equally brilliant investigation.

DEATH PERHAPS NOT INEVITABLE

The experiment has implications that should greatly interest philosophers, difficult as their practical application may be. Modern science has proved that "accidental death" is not a necessity of nature. Deaths from disease are all preventable. It is only ignorance and carelessness on the part of the individual and of Society that make them possible. But the Carrel experiments raise the more vital question: Is there anything inevitable about "natural death?" In one sense clearly there is not. There is no "death principle"; nothing about the human organism that inherently spells decay and ruin. So far as the structure and composition of the cells that make up our body are concerned there is no reason why the body should not remain eternally young. The poisons that it generates ultimately destroy it. If we could do for the body as a whole what Dr. Carrel has done for his experimental tissue — introduce certain solutions that would destroy the poisonous products — there is no reason why, barring accidents, we should not live forever. Under these circumstances, only a pistol shot or an attack of appendicitis could remove us. It is hardly necessary to add that there is no immediate prospect that Dr. Carrel or Mr. Metchnikoff will be able to solve this problem. These experiments, however, have at least pretty clearly demonstrated the cause of natural decay.

THE ROYAL RELATIVES (

**HOW THE CONTINENT IS RULED CHIEFLY BY GERMANIC K
OF ENDLESS INTERMARRIAGES — A MAZE OF COUSINS T
INTO ONE GREAT SOUTHERN GROUP AND ONE GREA
— THE RISE OF PETTY PRINCES TO KINGLY AND**

BY
GEORGE H. MERRITT

EUROPE at war can almost be likened to a huge family quarrel. The royal houses, especially the countries which are most vitally concerned by the war, are practically all of the same Germanic stock, and almost of one blood. There have been so many intermarriages between these houses that German blood dominates every European throne with the exception of the two small kingdoms of Servia and Montenegro.

There are several great family groups in which the custom of intermarriage is continuously carried on from generation to generation but is very seldom extended to the families of other groups. Sometimes, as in the case of the House of Hapsburg and the royal House of Hohenzollern of Prussia, a direct matrimonial alliance almost never occurs; there has not been a marriage between these two houses within the last two hundred years. In the south of Europe the Houses of Hapsburg, Savoy, Bavaria, Saxony, and Bourbon seem to form one combination of these family groups, while in the north the principal combination is made up of the Houses of Hohenzollern-Prussia, Great Britain, Denmark, Russia, and the Saxon duchies.

Most of the houses within the groups are made up of several branches, one reigning line and cadet [younger son] lines, and, of course, marriages between these different branches are of much more frequent occurrence than between separate houses. As it is common custom for first cousins to marry, and even uncles with nieces, the entire marriage system becomes most intricate and complex. Almost every one in a family, consisting of several branches, is, through marriage, very closely connected to every
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. This is a limited class, however, ɔelow these in rank are other houses ;nated as "mediatised" houses, and ed below these in turn are the non- l houses. It is usual that if a member sovereign house, ranked as a royal :e, marries into a house of lower or royal rank, his children, in Germany Austria, cannot succeed to his titles, become of lower rank. Some of these royal titles have been bestowed to a recognized rank to the morganatic -royal] wives and children of royal :es. Such, for example, are the princes ·attenberg, or the title of Duchess of enberg, bestowed upon the consort of ıduke Franz Ferdinand, heir to the rian throne, who with his wife was ıtly assassinated.

these sovereign houses of the first , many have arisen from cadet lines lder houses, where princes of cadet have either fallen heir by marriage ave been elected to fill the thrones of :ipalities. Most notable among these es which have been elected to fill the nes of different countries are the royal es of Greece, Belgium, and Norway. t notable among the houses which : fallen heir to thrones through mar- :s are the royal houses of Russia and ıt Britain.

ıe history of the growth of these fami- rom cadet rank to their present impor- e is full of interest. The most not- development of such a cadet line to l power is that of the House of Saxe- ırg-Gotha. To-day princes of this e are reigning in Great Britain, Bel- ı, and Bulgaria, and also held the ne of Portugal until that country me a republic. Princes of the House)ldenburg to-day reign in Denmark, :ce, Norway, and Russia. The House of rbon, at one time mighty in the extent s cadet lines, ruled in France, Spain, les, and Parma. The princes of Ho- ollern to-day reign in Prussia and mania.

ıE HOUSE OF HOHENZOLLERN — ssıa: The growth of the House of enzollern, from its early holdings as ıts of Zollern to its present domi- e of the whole German Empire, has been due to the foresight and bravery of its warlike princes. According to the law of primogeniture everywhere in force in Europe, all the landed estates and titles descend to the eldest son. Since there seems to be no reason for building :w cadet lines, as there are no titles to succeed to, few of the younger sons of the royal families build up cadet lines of their own. When they do the line is not long-lived. Many of the younger sons follow a soldier's life, and many never marry. Usually only the first two sons marry early.

In Prussia, the eldest son is known as the Crown Prince; all other males of the family become Princes of Prussia. Emperor William has six sons, four of whom are married. This generation is tending toward the northward for their matrimonial alliances. There seems to be a tendency to solidify all parts of the German Empire by bringing all parts of other princely possessions into closer contact with the royal family. The marriage between the Emperor's daughter, Victoria Louise, and the young prince of Cumberland, now the Duke of Brunswick, was also probably made with this end in view.

By the marriage of his sisters, William II is the brother-in-law of the hereditary Prince of Saxe-Meiningen, of Adolph, Prince of Schaumburg-Lippe, Frederick Charles, Prince of Hesse, and of King Constantine I of Greece. He is a nephew of the Grand Duchess of Baden, and counts among his other Prussian cousins the Duchess of Connaught of Great Britain.

THE HOUSE OF HAPSBURG — LORRAINE: This is an immense family reigning in Austria-Hungary. There are besides the imperial line at least three others, large and flourishing. This family, belonging to the great family group of southern Europe, is allied mainly with the houses of Bourbon-Sicilies, Bavaria, Bourbon-Parma, Spain, Savoy-Italy, Belgium, and Saxony. The family takes it names from its earlier possessions, the Duchy of Lorraine, which it gave up when the first of its princes, Francis-Stephen of Lorraine, married the Austrian heiress of Hapsburg, Maria Theresa, and succeeded to the empire.

The *Emperor Francis Joseph* is eighty-four years old and has reigned since he was

eighteen. His wife, the Empress Elizabeth, a Duchess of Bavaria, was assassinated in 1898 at Geneva by an Italian anarchist. In 1889 his only son, the Crown Prince Rudolph, shot himself in a hunting lodge. In 1867 he mourned the death of his favorite brother, who was known as Maximilian, the short-lived Emperor of Mexico. In June, his successor, Franz Ferdinand, and his wife were shot to death by an assassin at Sarajevo.

His grand-nephew, the Archduke Charles Francis Joseph, is next in line of succession. He is twenty-seven years of age, the son of the Archduke Otto and Marie Josephine, sister of the King of Saxony. He is married to Zita, Princess of Parma.

One of the Archduchesses of Austria-Teschen is the Queen-Mother of Spain. Her family is extremely wealthy, and her brother, the Archduke Frederick, now the main support of the aged emperor, is accounted as one of the richest princes in the world.

Alfonso XIII, King of Spain, is the only ruling connection of Emperor Francis Joseph, with the exception of King Frederick August III of Saxony, who married an Austrian Archduchess. The King of Spain inherits the famous "Hapsburg lip" which is seen in so many of the male members and descendants of this family — a heavy, overhung, pendent lip.

THE SAXON HOUSES: The Saxon Royal House has given more kings and important princes to Europe throughout its history, and to-day is better represented by descendant sovereign families, than any other royal line. After many early vicissitudes it divided definitely in 1640 into two branches, Saxe-Weimar and Saxe-Gotha. Saxe-Gotha again divided in 1672 into four main sub-branches, Saxe-Gotha-Altenburg, Saxe-Meiningen, Saxe-Hildburghausen, and Saxe-Coburg-Saalfeld.

THE FAMILY OF SAXE-COBURG-GOTHA: From the least important this family has come to be the greatest and largest of the Houses of Saxony and has already given birth to four lines of kings:

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ıad three brothers and five sisters, of the brothers, as has already ted, fell heir in turn to the Duchy ɔburg-Gotha. The other brother Arthur, the Duke of Connaught, Governor-General of Canada. ɜt sister, Victoria, was the wife of Frederick of Germany, and the ster was the Grand Duchess of ɔth are now deceased. The other ɛ still living; Helen is the wife of Christian of Schleswig-Holstein, the widow of the recently deceased ımpbell, Duke of Argyll, and is the widow of Prince Henry of rg. With an already wide rela- hrough these marriages, and those others, Alfred, Arthur, and Leo- ıg Edward further augmented the ances through his marriage with Alexandra of Denmark, and left ccessor, King George V, relation- h all the principal royal families ɜrn Europe.

ɜorge V of Great Britain was born and was the only surviving son father became King. He has ers — Louise, the widow of Alex- ff, Duke of Fife, who died in 1912, who is unmarried, and *Maude, the Norway*. As a younger son, he was for the Navy, but suddenly came ıinence by the death of his elder n 1892, Prince Albert, Duke of In 1893 Princess Mary of Teck, to have married Prince Albert, ied to Prince George, and they daughter, Princess Mary, and — Edward, Prince of Wales, ces Albert, Henry, George, and ueen Mary is the daughter of late Duke of Teck, and Princess elaide of Cambridge, the first Queen Victoria. Francis was the morganatic marriage of Duke r of Württemburg with Claudia, of Rhedey, a daughter of a very ɜarian House, and therefore the ɔf King George V have new blood ɔrought in from the noble families ımy, Austria, and Hungary.

OYAL FAMILIES OF THE HOUSE OF I-OLDENBURG. The kings of Den- eece, and Norway, and the Em- peror of Russia are all descended in direct line from the early German kings of Denmark and Norway.

THE ROYAL FAMILY OF DENMARK: King Christian IX (1818-1906) and Queen Louise had three sons and three daughters who all became famous. The eldest son succeeded his father as King Frederick VIII, and his eldest son in turn succeeded him as *King Christian X of Denmark*. The eldest daughter became the wife of Edward, Prince of Wales, and is now the Queen-Mother of Great Britain. The second son, Prince William, was elected as King of Greece, and began his reign there in 1863, as King George I. His eldest son, Constantine, now reigns as *King Constantine I of Greece*. Constantine is married to Sophia, a sister of the Emperor of Germany. The second daughter of King Christian was the wife of the Czar Alexander III of Russia, and is, therefore, the Queen-Mother of that nation. The second son of Frederick VIII is Prince Charles, who was elected *King of Norway*, as *Haakon VII*.

THE RUSSIAN ROYAL FAMILY: There has not been a Slavic Emperor in Russia since the bloody days of strife and intrigue following the death of Peter the Great. The male line of the House of Romanoff having died out, several Empresses with their consorts fought for supremacy in Russia, and there were several which held the throne for a short time. Finally Peter, who was the son of Charles Frederick, Duke of Holstein-Gottorp, and of Anne, daughter of Peter the Great and Catherine I, got possession of the throne. But only a short while did he reign; his wife, Sophia Augusta, Princess of Anhalt-Zerbst, a woman of strong mind and steel determination, became jealous of Peter's power, and, putting him out of the way, seized the government herself. As Catherine II, she was a great ruler and governed the Russians with an iron hand. Her death brought her son by Peter to the throne, and in the Czar, Paul, the new dynasty of Holstein-Oldenburg-Romanoff was founded. The present *Czar Nicholas II of Russia*, great-great-grandson of Czar Paul, thus belongs to a wholly Germanic family.

The Czar's mother is the Princess Dagmar of Denmark, and he is, therefore,

widely related through the Danish connections as well as his own. In the Russian royal family there are living twenty-four grand dukes and princes, five of them the Czar's own first cousins. The family is mainly allied by marriage with the families or houses of Hesse, Württemburg, Greece, Oldenburg, and Mecklenburg-Schwerin, although the several marriages with each one of these houses comprise only a small part of their widespread alliances. During the last century there have been forty marriages between the family and other European houses. Whole chapters might well be written on the extensive alliances and ramifications of this house. Besides being related, mostly in the same way as his first cousin, George V of Great Britain, to all of that King's cousins and kinsmen, he is even more closely allied in relationships, strong, if not entirely direct, with the Hohenzollern House of Prussia.

THE ROYAL FAMILY OF BELGIUM: Founded in 1831 by the election of King Leopold I to occupy the Belgian throne, the family has thus far produced three kings. Beginning with the marriage of King Leopold I to Princess Louise of Orleans, practically all the later marriages of the family have been with the Southern group of royal houses. In this way the family is kindred to the royal houses of the north only in the male blood line, but is closely allied to the houses of Hapsburg, Bourbon-Orleans, and Bavaria.

King Leopold I had three children. The daughter of Leopold I is the ill-fated widow of the Emperor Maximilian of Mexico, executed there in 1867. She has gone insane from her troubles.

The second son of Leopold I was Philip, the Count of Flanders, married to Princess Marie of Hohenzollern, sister of Prince Leopold of Hohenzollern and of King Charles of Roumania. Of his three children, Henriette is the Duchess of Vendome — a Bourbon alliance — and Princess Josephine is the wife of Prince Charles of Hohenzollern, younger brother of Prince William of Hohenzollern and of Crown Prince Ferdinand of Roumania, and she is aunt, by marriage, of King Manuel II of Portugal. The son is *King Albert of Belgium*, who succeeded his uncle Leopold II in 1909.

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S THIS A "BARGAIN DAY" FOR INVESTMENTS?

[NO time within easy memory — not excepting even the worst stage of the financial convulsion of 1907 — have American investors been in a quandary than at present to know do with the securities they hold; ow what to think about the pros- the investment market.

effect is the war going to have upon ks, bonds, and mortgages? That is stion which has been upon the of thousands since the armies of began to clash.

e letters that have come to the editor of this magazine during few weeks, there has been a curious of suggestions. Some have sought ıbout the sale of securities, appar- cause of vague fears lest interest idends may suddenly be cut off. ıave hinted at distrust of banks in times like these and have sought bout the kinds of investment that ıe largest possible degree of safety, ive of what they yield. Still ınd perhaps the largest proportion, ferred to the shrinkage that took market values just before the clos- the exchanges of the country on th, and have inquired about the ty of being able to buy, later on, the risk of "going wrong," secur- t are "bound to rise in price."

ertinent, therefore, to look at the unprecedented state of affairs e point of view of the personal , and try to discover, if possible, it is favorable or unfavorable.

gin with, it will be well to consider ecame necessary for the New York xchange and all the other secur- ets of this country, following sim- ion by the principal markets of to "shut up shop," and place an omplete embargo upon transactions s and bonds. Fundamentally, it ause of the strongly developed trait of the European investor of regarding cash as immeasurably more desirable than securities in times of trouble of any kind. Never before had he been confronted with such a desperate situation as when this war became inevitable. He knew from experience that of all his favorite investments, the "Americans" had always been convertible with the greatest amount of dispatch, and these he began to sell for as much as he could get with little or no thought of their intrinsic value.

And so it came about that the markets of this country were threatened with a deluge, whose demoralizing effect, had it been permitted to sweep in with all its force, may be more or less clearly conceived by recalling that the investment reservoirs of Europe contain American securities of an estimated value of more than $6,000,000,000. It was, then, to stem the tide of this gigantic wave of European selling, which obviously would have meant a fatal drain upon this Nation's financial resources, that the machinery of the market place was stopped, with active stocks quoted from 15 to 20 per cent. below their high prices for the year, and active bonds from 3 to 5 per cent. below.

It is perhaps little wonder that, as the startling proportions of the European conflict have become more generally and more clearly understood, and as its economic aspects have been more and more widely discussed, the question should have arisen in the minds of a great many investors whether these declines have not been merely temporarily arrested; and whether the investment crisis is not, after all, something more than a matter of market.

For the benefit of those who feel inclined, on the showing of relative prices alone, as many apparently do, to undertake to pick out stocks which seem to promise unusual appreciation in market value at some time, it may be said that the possibilities of going wrong with such an experiment are infinitely greater now than

under ordinary conditions. Even the tested formulas for calculating intrinsic values in the class of dividend-paying stocks with investment characteristics have suddenly become complicated by an added unknown quantity. This is suggested by the following statement, issued recently in explanation of the cessation of dividends on the preferred stock of a certain large utility company:

"In view of the present unsettled conditions throughout the world, brought about with such startling rapidity by the general European war, the board of directors have decided the only proper policy is to conserve in every possible way the cash resources of the company until the effect of the war is more clearly determined."

Nor is this an isolated case. Similar explanations have been made for the omissions of dividends by several railroad, industrial, and utility companies during these last few weeks.

Experience has shown that it takes approximately a billion dollars of new capital every year to nourish our growing corporations. But with the depletion of the world's supply going on at such a rapid rate, capital will become an increasingly expensive luxury. Many corporations will, indeed, be forced to a fare of bread and water. The new problem for the investor is, therefore, to determine, as well as he may, what corporations are likely to find it necessary to resort to the expedient of withholding dividends from their stockholders to provide even that meager subsistence. That can be done only by extraordinarily painstaking study of financial reports and of the changed conditions in every line of trade and industry. So the really conservative investor, particularly if he is not trained in the analysis of accounts, or if he has no competent adviser upon whom he can depend for an intelligent estimate of underlying values, will do very well to leave the stock market entirely alone.

But with bonds and mortgages the situation is far different. Together, these two types of securities make up the big department of the market which has always catered most directly to true investment principles — a fact contrast, stands out at a tir present more clearly than eve department of the market the vestor will continue to be able t confidence, even though called haps, to make his selections wit nicer discrimination.

For the average investor w safe and ample income, and little about knowing at wha fund might be liquidated at moment, the best opportuniti as, indeed, they have always b the quiet, unlisted securities w sold every day in the market

In this category of investme the direct first mortgage on re the municipal and the public — securities which may con expected to prove the least su the shifting fortunes of the w attendant commercial and in settlement. In this category the road to safe investmen marked very clearly during t years. It has been demonstr first place, that in the farm m the real estate first mortgage is no element of speculation handled by specialists who c clean record of intelligence a Methods of municipal financin developed with such scientifi that that type of bond has b in a unique position for sa

For investors whose require them naturally into the open opportunities are, of course, sound and seasoned railroad an bonds. In this category of i the present situation seems to h possibility of more or less particularly for those who hav the habit of watching the with eager interest to note th prices. So that it depends upon the question of temperame ability to exercise cool judgme extent the investor ought to seek tunities there. Most of the be these two classes are now lov although they have by no m marked down to a "bargain" ba

LOUVAIN THE LOST

AN AMERICAN EYE WITNESS'S STORY OF THE BURNING OF THE BEAUTIFUL AND HISTORIC CITY: A GRIM WARNING TO THE BELGIANS THAT THE GERMAN MILITARY AUTHORITIES WOULD TOLERATE NO RESISTANCE FROM CIVILIANS—A STAGGERING RETRIBUTION FOR THE WORK OF A FEW SNIPERS—LIFE IN LOUVAIN BEFORE AND DURING THE OCCUPATION—ONE DAY OF FRATERNITY BETWEEN SOLDIERS AND CITIZENS, ONE DAY OF DISTRUST AND REPRISALS, ONE DAY OF EXECUTIONS OF CITIZENS IN SQUADS, AND THEN DESTRUCTION—WAYSIDE SCENES IN THE WAR ZONE OF BELGIUM

BY

ARNO DOSCH

[*This is the story of the destruction of Louvain, told by one of the two trained American observers who saw it—Mr. Arno Dosch, whom the* WORLD'S WORK *commissioned to write its first matter from the front. It is so graphic and so timely a picture of war-stricken Belgium that it is added to the October* WORLD'S WORK *after the rest of the magazine is printed, and it is inserted without page numbers in the most accessible place that the binders can find for it. The following letter from the author accompanied the manuscript.*—THE EDITORS.]

This is the best story I got out of my two weeks in Belgium. The only other American who had as good an opportunity to get at the story of Louvain was Will Irwin.

I am also going to write in the next few days a story on the astonishingly efficient German Army based on my own observations of it in its passage through Belgium. I followed it as far as the French frontier.

This time next month I may be over in the Russian-German scrap, but I may go back to Belgium. Paris is already closed to London.

Yours,

ARNO DOSCH.

London, September 3, 1914.

P. S. I have not put a thing in this story that I did not see. It might have been more vivid to give the lurid details told about Louvain, but I send enough to indicate what it must have been.

THE day before the German troops entered Brussels, the day they occupied Louvain, on August 19th, three other American correspondents and I went to Louvain from Brussels in a taxicab. Without realizing it, and without being stopped by outposts, we drove directly between the retreating Belgians and the advancing Germans. We were trapped in Louvain, and when the Germans learned of our presence they held us there three days on parole. This gave us time to know and love that charming old university city. Less than a week later two of us returned and saw it burn.

In those days in Brussels every day had a character of its own, and this was Wednesday, the day after the Queen and the Court had hurried in the night to Antwerp. The streets, which had been full of people the day before, were nearly deserted. The few pedestrians hurried along silently. Even the civic guards, with their high-domed hats and their cockades, no longer patrolled the streets. Only the Belgian flags hanging from every house front showed that the city was not half empty.

The four in our party, Mr. John T. McCutcheon, Mr. Will Irwin, Mr. Irvin S. Cobb, and I, had been trying for two days to get permission to leave the city so we could see some of the fighting between the Germans and the Belgians, and this morning we were on edge with anticipation. Mr. Brand Whitlock, the American Minister, had been intervening in our behalf, and we also had, besides our passports, impressive documents issued by Mr. Ethelbert Watts, the Consul-General, explaining the

we were American citizens. With these we went to the Gendarmerie, a massive old citadel of a building, to secure "laissez passers."

LOUVAIN BEFORE THE BATTLE

Entering the old Gendarmerie through a small door in a great wooden gate, we passed under a low, deep arch and came upon half a dozen unshaved guards sitting before a long, plain table in the courtyard. Their uniforms gave no evidence of rank, but the manner in which they summoned us before them left no doubt as to their authority. As we stood explaining our need I noticed the courtyard was filled with military wagons, heaps of grains and provisions, and about fifty horses being harnessed before they had finished their morning oats. From an upper window some one was throwing out bags of grain, which were being hurriedly loaded into wagons.

We were told no "laissez passers" were being issued. "But you might try to see what you can do with these," suggested one of the guards, pointing to our passports.

Two days in Brussels had taught us to take every opportunity at once. So we left in a hurry, but, as only one of us spoke French and that poorly, we decided to stop at the American Legation to get some one to explain to our French taxicab driver what it was that we wanted him to do.

As we turned the corner of the Rue de Treves we saw the American flag flying before the American Legation. This was the first intimation we had that the city was threatened with invasion. But even then we did not expect anything more than a cavalry raid, and neither did the people of Brussels.

Our taxicab driver was instructed to take us as far as he could go, and it came near being only half a dozen blocks. There we were stopped by a double row of derailed street cars across the avenue. These were obviously calculated to break the formation of the expected Uhlan raid and were so placed as to make a direct charge impossible. The work had been done by a company of middle-aged citizens in blue smocks, drawn in at the belt line by their sword belts. Their costume was that of the revolution of 1830, which made of Belgium an independent kingdom.

These staunch citizens were not for letting us pass at first, but one of them said of the taxicab driver, "Let him get his fare," and that seemed to be a better argument than our passports. So our taxicab was permitted to describe a letter S passing through the barricade and we went on out the avenue. We now met a good many of these smocked burghers, binding the trees ng the avenues into masses of barbed wire, and upsetting carts in the cross lanes. Then, for the next mile or two, we passed many people strolling or reading in the parkways, even nurses with baby carriages. But after we passed the civic guards at the barricades on the edge of the Forest of Soignes we had the road to ourselves as far out as the village of Tervuern, where King Leopold's Congo Museum stands.

We were now well out of the city and still going. There was not even a sentry for two or three miles before we came to the village of Tervuern. There half a dozen people were sitting in front of a café, and they stared dumbly after us as we took the Louvain road. That, too, was empty so far as we could see, except for a Belgian soldier mounted on a bicycle, whom we soon overtook and invited into the taxicab. We hoped to learn the pass word from him.

THE TERROR-STRIKING UHLANS

About half way to Louvain, at a point from which you can see a corner of the field of Waterloo, we came upon a dozen refugees with packs on their backs. They stopped only long enough to tell us they were from Tirlemont, the next important town beyond Louvain. "Uhlans!" they cried, as they hurried on toward Brussels. In their tone was the same terror heard in the voice of settlers on the American frontier when they cried "Indians!"

Within the next half mile the road became blocked with refugees. They were of all kinds and ages, peasants with their household goods in ox-carts, townspeople in carriages, men on horseback, women afoot. I counted eleven small children and one very old woman in a cart. A dignified old peasant grandmother sat in a wagon on a chair that looked as if it might have been lifted from the chimney corner. There were two red-cheeked girls, with their skirts tucked up, carrying a trunk. They had carried that trunk at least eight miles already.

Those who were wearing leather shoes were mostly footsore. Some carried their shoes in their hands. But those in wooden shoes clicked steadily on. Occasionally, when a spasm of cannonading began beyond Louvain, the whole line started forward at a faster pace. Little children holding to the hands of their parents were shaken into a dog-trot. Oxen were prodded into an ungainly lope. Those with light burdens pressed past those with heavy. But none that I saw deserted their burdens. The nearer we drew to Louvain and the louder the cannonading, the more hurried and silent were the refugees. Those who looked at us at all hardly seemed to see us. Only a few stopped and stared after us. They seemed trying to figure out what manner of mad men we were.

In the midst of the refugees we came upon a

soldier still carrying his gun. "Where English? Where are the French?" he ut to us, and, as we stopped to answer stion, the refugees that dammed up be-peated the question. "Are the English they asked appealingly. We replied did not know but assured them the road sels was open and safe.

"WHERE ARE THE ENGLISH?"

ow began to meet soldiers in groups of d threes, and from each group came the question, "Where are the English? are the French?"

oon came to understand the eagerness uestion. The Belgians had been holding rman advance for nearly three weeks. ad fallen four days previously and they ght every inch of the road as they re- Each day they had been expecting ve the support of the English and the and, now their capital was threatened, uld not believe their allies were not hind them.

matter of fact the German army first ered the French army at Namur, five miles southeast of Brussels, and it until two days after the occupation of that the German advance column which rect from Brussels to Mons had its first with the English at Bray, a small town French frontier.

aefdael, a village four miles from Lou- e came upon ten thousand Belgians p in a valley to the north of the road he Germans advancing from the south ot see them. The right flank of the s lay right along the road, and we could t the Belgian army was made of. They dusty and foot-sore lot, most of them ed and asleep on the grass, but those re awake smiled and waved their hands Of the hundreds of faces I saw in that ittle army there was not one which defeat. And, despite their careless , they were in good military order. d among them were the rapid fire guns, y dogs, which had done such astonish- od work on the retreat from Louvain. hose patient Belgian dogs, lying on their nting in the sun, gave the whole scene iarly pathetic look. It all seemed so nd amateurish against the advancing army with its half million men and its e equipment. But, three days later came back that way, the wrecked town dael and the graves on the south side oad showed that the Belgians and their wn mitrailleuses gave a good account of ves that *afternoon before they* retreated.

A mile from the ramparts of Louvain we were stopped by two English motion-picture men in an automobile, who said it was dangerous to go farther. As we stood talking with them I saw a soldier lift his head in the beet-field beside the road. I looked closer then and saw that the field was full of Belgian soldiers and, as far as I could see, there were Belgian soldiers behind every hay-cock and every bush. But the cannonading was still vigorous on the far side of Louvain and we considered it still safe to go a little closer. We also knew that Louvain had been the headquarters of the Belgian army and we thought it was yet. But that morning at ten o'clock, King Albert had moved his headquarters to Malines.

Our taxicab driver was frightened by what the motion-picture men told us and refused to go farther. He did not want to risk his car, he said. So we told him to wait for us there and the four of us set off afoot into Louvain. The road was now crowded with refugees, but we were too intent on pushing forward to the fighting line to pay much attention to them. To the question, "Where are the English? Where are the French?" we merely shook our heads. We could not trust ourselves to answer. We knew now in its fulness what that question meant to them. It was not until we passed the old ramparts, made into a boulevard, that we found our way free of refugees. They had not come through Louvain, but had passed around it on the rampart. The streets, however, were full of people. The quarter from which we entered was the oldest and the poorest, and the narrow streets were at points blocked, but people moved aside courteously to give us passageway. There was no sign of fleeing and that was what gave us courage to go on. We thought these people were in the street merely listening to the cannonading.

AN EDDY IN THE WHIRLPOOL

We stopped a priest to inquire our way and he turned back fifty yards to take us to a cloister, where, he said, there was a priest who could speak English. As we entered the low, cool arch so common to Belgian houses we could see the priests at the bottom of their garden among the pear trees and the wall fruit. Among ourselves, we commented that here at least the ravages of war would not be felt. A week later that cloister was a ruin.

The priests came forward to meet us and refused to hear a word of apology until we had rested and drunk a glass of light red wine. To them, we found, the war was in another world, even though the cannonading was now quite loud. After a few minutes, we pressed on toward the Grand Place, where we still

restaurant in Louvain. Its proprietor had drawn its iron blinds and taken down its sign, and, with all their detailed knowledge of the invaded country, the Germans had not discovered it. There our breakfast was cooked by the woman who owned the restaurant, a slight little Flemish woman with the gentle smile and even the parted hair of a Mona Lisa. The usual spiritual quality of her face was also heightened no doubt by the fact that she was soon to have a child.

It was well into the morning before our complacency was disturbed. Two ignorant little men, who looked as if they might be a peasant's stable hands, were led briskly up the street by a squad of soldiers to the staff headquarters. Ten minutes later a large closed van which looked like a city patrol wagon passed down the street again and turned to the left upon reaching the station. It was followed by a number of people wearing Red Cross badges. In five minutes the van returned. In five more minutes it was followed by a squad of soldiers and in ten minutes more by the Red Cross attendants bearing stiff, undersized bodies wrapped in blankets. This was the first military execution in Louvain. The undersized men were found guilty of shooting at the soldiers.

Meanwhile we had been ordered to keep to our hotel, our eating place, and the main streets. We were promised that Mr. Whitlock would be informed of our whereabouts, but we were not to return to Brussels. We had learned too much about the movement of the troops.

THE PREDOMINANCE OF PRUSSIANS

That second day in Louvain, Thursday, was full of activity. A half dozen aeroplanes made their headquarters to the right of the station, and to the left was the place of execution. Meanwhile the troops passed constantly in three columns, those from Diest still singing the four favorites of the day before, occasionally varying with the Austrian national air. Early in the day it struck me that the troops were all blond. They were, in fact, all from points north and east of Berlin, and, though I watched idly while no less than forty thousand passed, I counted only thirteen men who were not decided blonds. I also doubt if there were a dozen whose hair was not clipped close to the scalp.

By noon the relation between the soldiers and the townspeople had become a little strained. About this time there were half a dozen shots on a side street and, after awhile, a German officer who had been shot through the leg was carried by on a litter. Behind was the dead body of a Belgian. Evidently the German officer was the better shot. As the day wore on military executions down to the left of the rail-

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ırning of the third day we were told turn to Brussels, and we found it · or so to say good-bye to the kindly ıad come to know. We left our hostess with the greatest regret. ıg the best cook in Louvain, she and gentle woman. I remember laugh by trying to tell us in English ·edicament of the mayor. She said risis of the nerves." Undoubtedly ·n any one of 45,000 people could life.

e were our friends the priests, our ıunsel, Mr. Sabbe, and the tobacco had the best brands of Havana ho behind his store had built a little a fountain which was the delight and his three growing daughters. besides, the pleasant spoken wo- ıld us fresh linen and the buxom from whom we got delicious little ıut of the oven. Our speaking ac- ncluded most of the people who main streets and they all wished us ey. Those who knew us best ex- ıope that we would return to Lou- ıpier time.

ıS OF WEAPONS TO BE SHOT

did not seem very near, however, ; the latest notice that was being left. It was explicit and complete. ılain language that every citizen weapon in his possession or in his ı be immediately shot. Every ouse in which a weapon was found ıt. Every person in a house from t was fired would be shot. And from which a shot was fired would

later I returned to Brussels from ·ontier to which I had followed the ps in their march into France and ı the news that Louvain was being ere were a dozen stories current vas being burned, but none of them ible of proof. I tried to get at the lized the burning of Louvain would istory, but I doubt whether it will ·n just what happened in Louvain before the city was ordered to be The details, however, are not ant. Ill-feeling had been growing ınd day. The German troops had become bad-tempered when their comrades were shot by snipers, and the people of the town had in turn grown restive under the rule of the mailed fist. There had been an exchange of shots, perhaps even a conspiracy, and the German troops took the full measure of reprisal.

On the way out of Belgium the next day I passed through Louvain in company with other newspaper correspondents who were trying to get out by way of Holland. We were told that a troop train returning to Germany with wounded and with English prisoners would leave the Gare du Nord in Brussels at eight o'clock in the morning. It finally left about four in the afternoon. In the station we heard the usual tales about Louvain and there was considerable excitement about it among the soldiers. The officers treated it coolly as a reprisal of war, but the incitement brought on by destruction showed in their men. At different times during the day five soldiers told me in a whisper that Brussels would be next, and there was no doubt from their tone they hoped it would be. There was even reason to fear it. For, as we re-entered the station on the way back from a hurried luncheon in the hotel, two rapid-fire guns were being drawn up before the Gare du Nord so that they commanded the two principal streets of Brussels.

LOUVAIN ON FIRE

The train ran very slowly and did not reach Louvain until nearly evening. Some of the nearby towns were also afire, and at all the stations there were many soldiers. But it was not until we came in sight of Louvain that we realized the extent of the destruction. Some of us had not been able to credit it until we saw with our own eyes. I was prepared to find one or two of the more troublesome quarters destroyed, but the first thing that caught my eye was the roofless church of St. Pierre. Across the Grand Place the Hotel de Ville still stood, but everything in between, a distance of half a mile, and everything for a mile beyond to the farthest rampart, was burnt. All the handsomest houses in the northern end of the city were bare brick and stone walls. There were a few dwellings along the ramparts to the east still standing, but these were burning, too, when our train went on two hours later.

My first inclination, as the train pulled in, was to go through the ruined town, but the train had hardly come to a stop before a soldier, drunk both from excitement and drink, shoved his head into the window and cried with an expressive gesture, "Three cities razed! Three! There will be more!"

He had hardly gone before another shoved in

his head and cried "English" in a menacing tone. We called back "Americans," but he did not understand. "Americans from the United States," I said in German. "We are not enemies." "All who can not speak German well are enemies," he replied, fumbling at his belt. It looked for a second as if we were in for a struggle, but another more intelligent soldier pushed him aside with the explanation, "He's drunk."

I realized by this time it would be extremely dangerous to go down the streets of Louvain in the twilight with my poor command of German. Moreover, the final act of the destruction of Louvain was being staged right in front of us. While it was being played, during a period of more than an hour, the third soldier, who had not been drinking but was much excited, remained at the window talking to us. As the station was crowded with other excited soldiers we did our best to keep him there.

Meanwhile I could see directly out of the entrance upon the Place de la Station and down the Rue de la Station as far as the wrecked church of St. Pierre. Every house along that stately street was burnt. The homes of all our kindly acquaintances were gone. We had been told that the people had all been warned to leave, but I wondered what had become of the little Flemish woman of the restaurant with childbirth approaching, and the many lone women whose husbands and brothers were in the Belgian army.

About a hundred English prisoners were led across the Place de la Station and, after they had been placed in cars, a long line of citizens of Louvain were brought around in a circle under guard. I could not make out at first what the purpose of this was as my view was

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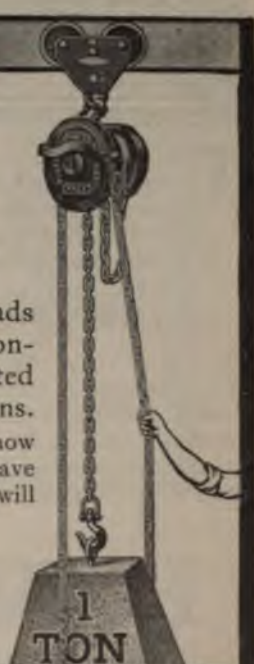

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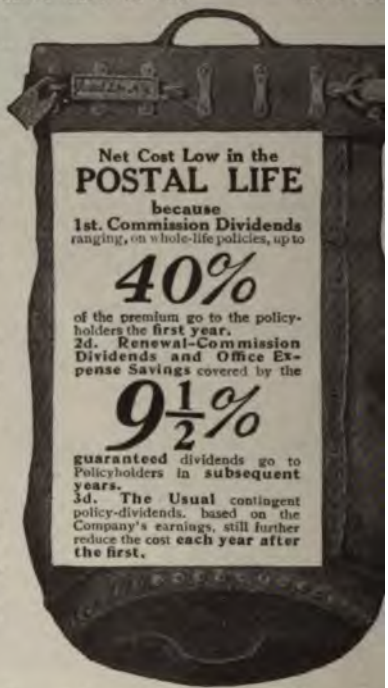

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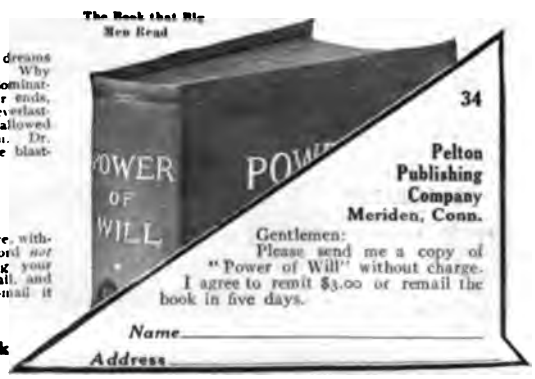

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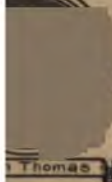

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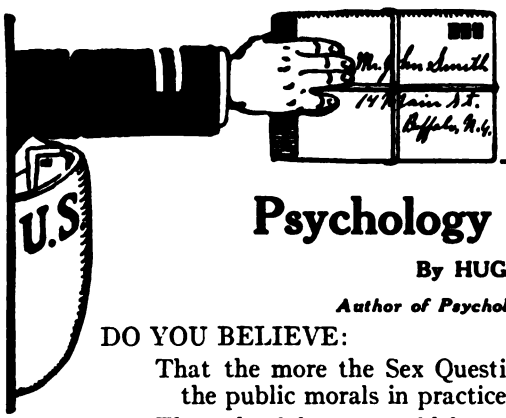

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This boy's name was George Eastman.

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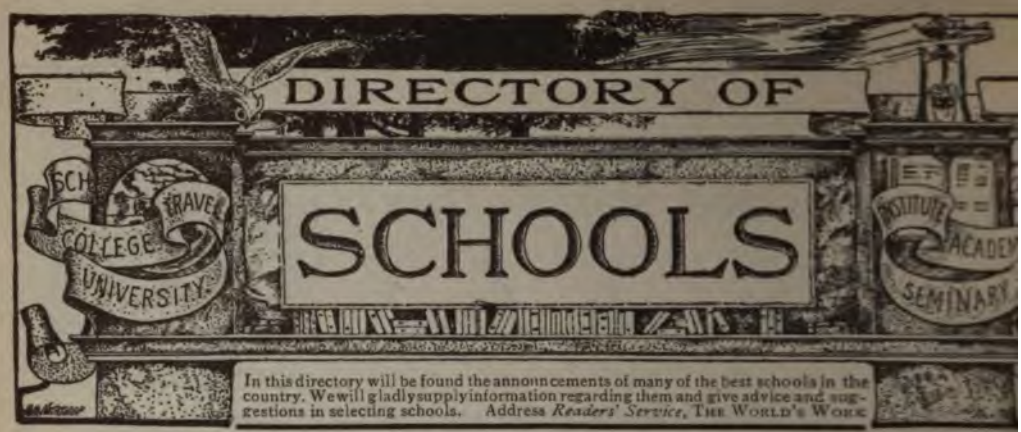

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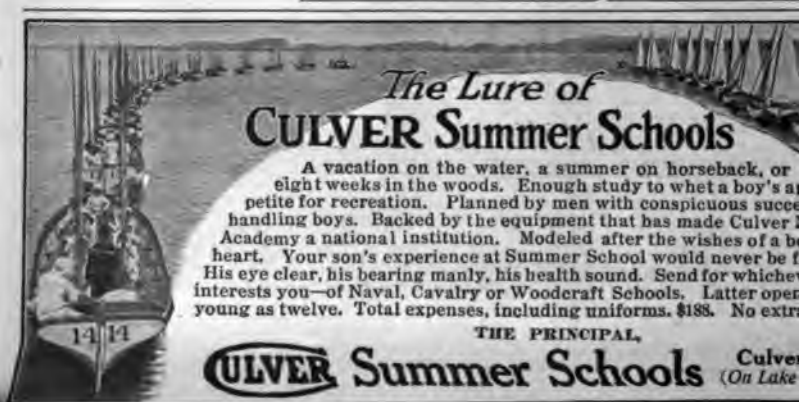

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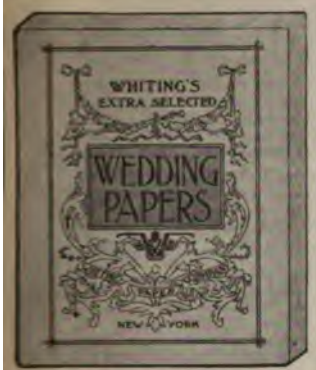

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INSURANCE

482. TIMID. *Q.* I am and have been for six years or more a constant reader of the WORLD'S WORK and have been very much interested in your advice on investments. A friend has just been here to ask me about investing her money. She is an elderly lady and very timid; has just sold a farm and must invest her money so it will net her 5 per cent. in order that she may live without using up the principal. Are there bonds which will pay 5 per cent. over the taxes?

A. Every time we have presented to us a problem like the one you outline we are brought face to face with the question of the hardships which the personal property tax laws of a good many of our states impose upon the individual investor. In Illinois we believe, this situation is a very annoying one. It appears that the average tax rate there on the full value of a bond is about 2 per cent. which on a 5 per cent. bond selling at par would amount to about 40 per cent. of the income. There are no bonds, except Government bonds, that are exempt from taxation in the state, — not even the bonds of the State's own municipalities. The stocks of Illinois corporations are exempt but there are few, if any, securities of that type which, in our judgment, would be suitable for the investment of the funds of an elderly woman, especially one who is nervous and timid. Mortgages are taxable whether the real estate securing them is situated in Illinois or elsewhere. But in that class of securities it might be possible for you to find something suitable for an investment of this kind, yielding a sufficiently high rate of interest to offset the tax, and still leave the investor with income that would be in the neighborhood of 5 per cent. on the capital employed.

483. BERNAD. *Q.* I have two or three thousand dollars to invest for income in such a way that it will net me from 5 to 5½ per cent. I have been thinking of buying some U. S. Steel preferred stock. But I do not know whether the interest is sure. I am inexperienced in such matters and would like to have you tell me what you think of my plan.

A. If the money you mention represents your entire surplus, we should not consider it wise for you to put it into a security like U. S. Steel preferred stock. For inexperienced investors, this type of security is not, in our judgment, the proper type. Even the best stocks and particularly those of the industrial class, have many elements of speculation and are suitable investments only for people who have had experience, and know how to estimate the inherent risk involved. In a general way, we are inclined to think that public utility bonds would be as suitable as anything for such purposes as yours. In that class of investments it would be possible for you to get safety with a yield of to 5½ per cent. and at the same time a reasonable of marketability.

484. CONNECTICUT. *Q.* I recently pu some of the 4 per cent. bonds of the American Tel. Co. paying 86 for them. My broker whom have always taken without question assured me would net 5.40 per cent. but in doing a little on my own account I have arrived at the co that I am getting a return of only 4.66 per cent right? If not, how does the broker arrive at clusion?

A. Your broker is right. The discrepancy b his figure and the one at which you have arrive to be due to your having failed to take into acco appreciation of $140. per bond that will take pl tween now and the time of maturity, when the bo be paid off at par. This appreciation in the l calculation is counted as a part of your inco amounts as you can readily see, to approxima per annum, since the bonds mature in 1020 total annual income therefore, is theoretically year. The broker's calculation is a scientif involving other factors and requiring some t less complicated mathematics to explain. Bu ing the theoretical income at simple interest w an approximation to the broker's rate.

485. SUPERINTENDENT. *Q.* I am desirou vesting some money in bonds and am writing for advice before doing so. I have never o bond and know little about such things. I hav available every three months for investment. I want first of all is security. I believe I wo to have a county or state bond that is non-here where the local rate is 3.70%.

A. We quite agree that under such circum as these, the most suitable investment mediun to be in the bonds of municipalities of you (Indiana). All such bonds issued since Ap 1903, are exempt from taxation. We think t also, that you would be able to find such bo denominations, at least, as low as $500, so the rate at which your surplus funds become able you might buy one such bond every six m The fact that few investment offerings of th become known in the general market preve from making specific recommendation of ver value. We think your best course is to ge direct communication with some of the re banking houses that specialize in municipal

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secured by such Bonds and Mortgages assigned to and deposited with a responsible, disinterested Trust Company, are purchased by National and State Banks as well as conservative individual investors throughout the world.

You name the denomination, from $100. up; the maturity from 1 year to 10 years; the place of payment—our office or Bankers Trust Co., New York.

If you do not know us, ask Dun or Bradstreet, or any Bank in Seattle

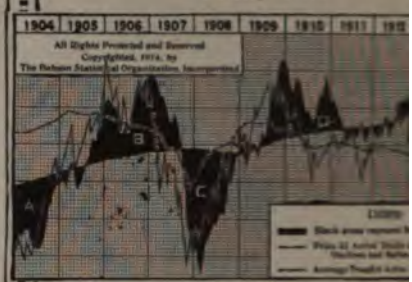
Write for circular B514

DAVIS & STRUVE BOND Co.
INVESTMENT BANKERS
807 Second Ave. SEATTLE

JACOB FURTH — JOHN DAVIS — J. E. PATRICK, MANAGER — F. K. STRUVE — V. D. MILLER

Mistakes in judgme are easily avoidal

Study this



* Subscribers receive this plot revised weekly.

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It shows you the fundamental busines conditions for the last ten years—give you the essential facts upon which a successful investment is based.

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Largest Organization of its Character in the

BANKERS TRUST COMPANY, HOUSTON, TEXAS + BANKERS TRUST COMPANY, HOUSTON, TEXAS + BANKERS TRUST COMPANY, HOUSTON

6½%

We offer any part of $300,000.00 of First Mortgage Real Estate Bonds on a basis to net 6½% on the money invested.

Bonds secured by a First Mortgage on 40,000 acres of land; 80% of the entire tract tillable; 6,000 acres now in cultivation. Improvements consist of

122 houses; 34 wells; 30 barns; silos and tool houses; 150 miles of fence.

Total valuation of improvements, $140,000.00; valuation of land, $1,035,000.00.

The company signing the bonds capitalized at $1,000,000.00, with total resources of $1,500,000.00. Bonds also guaranteed by individual, whose net worth exceeds $2,000,000.00. Bonds issued in $1,000.00 denominations, maturing:

$60,000.00 ..... January 1st, 1918
$60,000.00 ..... January 1st, 1919
$60,000.00 ..... January 1st, 1920
$60,000.00 ..... January 1st, 1921
$60,000,00 ..... January 1st, 1922

Descriptive circular will be mailed upon request.

BANKERS TRUST COMPANY
Houston, Texas

Capital $2,000,000. **Surplus $600,000.**

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To Yield Six Per Cent.

We offer a very attractive issue of First Mortgage Real Estate Bonds secured upon the fee and a new twelve story office building located in a growing City in the central West, having a population of approximately 90,000. The fee and building have been conservatively valued at $835,000; the total issue of the bonds being $450,000.

This issue matures serially for a period of ten years, thereby increasing the margin of safety each year.

We offer a limited amount of these bonds at a price to yield 6% on the investment, and can give the issue our unqualified recommendation as to safety.

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You cannot afford to be without this remarkable compendium of financial information, data and advice.

This *New 1914 Investment Book* will be sent you without charge if you write before the edition is exhausted. Ask us to put your name on our mailing list for new special offerings and mention the WORLD'S WORK.

Buy Securities With a Futu

Of the many elements of importance in investments, there are which should concern the conservative investor more greatly th round the FUTURE of the securities purchased or held. It supremely important feature to which we direct attention, nection with a rock-ribbed investment which this firm is now o To be able to obtain a full measure of security, the liberal 6% i the automatic retirement of the debt and steady, certain appre of safety through constant growth means simply this: Th security you buy HAS A FUTURE VALUE, as well as a p worth. This bond sells neither at a premium nor discount, but and interest will yield you just 6% net. It is in the highest entitled to your investment confidence.

We shall be glad to send you all of the facts concerning this off

BOWMAN, COST & COMPANY

Investment Bankers

610 Third National Bank Bldg., St. Louis, Mi

SAFETY LIES IN
Standard Investment Securities

¶ The established railroads and industrial companies have become a vital part of the economic wealth and development of this country. Their stocks and bonds can therefore be justly called Standard Investment Securities

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Write for our interesting booklets
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CHISHOLM & CHAPMAN

Members { New York Stock / New York Cotton } Exchange

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6%
First Mortgage Bonds

A DESIRABLE opportunity for a conservative 6% investment is afforded by the First Mortgage Leasehold 6% Gold Bonds of The Bailey Realty Company. This issue is in denominations of $1,000, $500, and $100; and we offer the unsold portion at par and interest.

These bonds are secured by business property admirably situated on Euclid Avenue, in Cleveland's fashionable shopping district.

The property is leased to responsible tenants—including one of the Claflin stores—for a period extending beyond the last maturity of these bonds. The rentals guaranteed by the leases are sufficient to pay principal, interest and all expenses, and afford a substantial surplus.

The value of the buildings and leasehold has been appraised by competent real-estate authorities at $1,492,000—nearly two and a half times the bond-issue.

Our intimate knowledge of the property and the personnel of its management justifies us in recommending this issue as a very desirable 6% investment. Write today for descriptive circular and current list.

T&W

The Tillotson & Wolcott Co.

INVESTMENT-BONDS
OHIO LICENSE NO. 1

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Rich
—but not happy

Wealth doesn't give you or any man the real joys of life, unless you see things in the right perspective.

Our economic studies develop so much which is helpful in a broad-gauged way that we have decided to offer in a

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the vital basic facts relating to social, industrial, political and religious problems, together with Mr. Babson's deductions and opinions.

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of this service will be to aid the well-to-do to get a better understanding of life and conditions as they are, to fit themselves and their children to take full advantage of their opportunities.

This experiment is radical—it will deal, not with prejudices and theories, but facts. We expect and invite criticism, and your request will bring you a *free sample report* of The Babson Labor and Social Service.

Address Dept. W-30 of the

Babson Statistical Organization

Labor Offices, Wellesley Hills, Mass.
Largest Organization of its Character in the U. S.

TALKS TO INVESTORS

By the

FINANCIAL EDITOR OF THE WORLD'S WORK

Consult the Readers' Service about your investment problems

THE GOVERNMENT AND THE TELEPHONE

So many readers of the WORLD'S WORK have written lately to inquire, for one reason or another, about the proposal for Government ownership of the telephone and telegraph lines, that I am tempted to repeat a few of the things which President Vail of the American Telephone & Telegraph Company has to say on the subject in the last annual report of the Company.

Readers who are stockholders in the company have by this time, in all probability received their copies of the report referred to, but there may be others especially interested in Mr. Vail's admonition to the "proprietors" of the company, that is, the shareholders, to "rest quietly and not be scared or frightened into sacrifices of their securities." He assures the proprietors that, "whether Government purchase be ultimately decided upon or not, the property is well worth more than the market price of its securities," and adds, "this is not mere assertion, it is an established fact. Friendly and unfriendly appraisals of the various properties have been made; in no instance has the appraised value been placed below the book value, while in most instances it has been placed in excess."

He refers to that part of the financial statement, which shows that for the $344,616,300 capital stock, there has been actually paid into the treasury of the company $369,136,414, and in this connection quotes Mr. Lewis, the principal Congressional advocate of Government ownership as saying, frankly,

"Be it said for the Bell system that it is the one great corporation in our country that has not issued tons of counterfeit capital. Its stock and bonds to-day represent the actual contributions of its shareholders in money to the great common enterprise, and we will not have that unfortunate circumstance to deal with in the valuation of their properties."

President Vail points out that "the introduction of bills for Government ownership is far from its accomplishment." "This," he says, "has been repeatedly done for many years past, some of them strongly favored by the heads of the Post Office Department." He denies that his company's opposition to Government ownership and operation is based upon pecuniary, partisan, prejudiced or personal reasons, but asserts that "it is because of our interest in the upbuilding of a great public utility and its preservation."

"We believe," he says, "that the efficient operation of every utility is necessary to the public, and we do not believe that any service efficient, progressive and permanent can be given by companies not making fair profits. No community can afford to be served by unprofitable or bankrupt companies, which are bound to give inefficient, unprogressive service . . . We are opposed to Government ownership because we know no Government-owned telephone system in the world that is giving as *cheap* and *efficient* service as the American public is getting from its telephone companies We do not believe that our Government would be any exception to the rule."

There is probably no one better informed that Mr. *Vail in regard* to the experiences of European countries with Government ownership of the telep speaks with authority when he says:

"Every telephone system in the world a Bell system as the standard, uses the Bell methods, and either uses the Bell apparatus o yet there is not one that gives an approxima facilities that the Bell system gives the publi as good or as cheap service on the same basis c ing, franchise conditions, and wages paid In England, where the Post Office pays a very net revenue, its telegraphs show a relativ larger deficit, while the revenues and ordinar of the telephone operations show a small b cluding, however, depreciation and obsolescer These deficits are not the result of a definite give a cheap service to individuals at the c but are due to errors in management, such as t mates of values and cost of new construction.

And in regard to the operation of the system in this country by the Post Office Depa points out that there are now about 58,000 pl have post offices, as against more than 70, reached by telephone toll lines of the Bell sy the entire compensation of the postmaster 50,000 offices amounts to an average of o $285 each per annum; and says he believes "t ment would prove disastrous, principally b postmasters are not fitted by experience or t the telegraph or telephone business, but als it would be secondary to their principal busir

HOW UTILITY EARNINGS GR(

A compilation of earnings statements of 11 tric light, power and street railway compan year ended December 31, 1913, made by *and Utilities* shows the following gains ove 1912:

In gross earnings	8.
In net earnings after deducting expenses and taxes	8.(
In surplus after interest charges . .	10 6:

The compilation does not include figure panies located in cities like New York, Chicag and Philadelphia, but its authors assert that it way a representative one. They point out t 117 companies, only three showed losses in g ings, twelve in net earnings, and twenty-six earnings; and that the latter were due in mos interest on cost of improvements and extensi during the year were only partly reflected earnings or savings expected in operating cost

Investors who have followed the so-calle utility movement"—generally recognized as most important phases of this country's eco velopment during the last few years—are ac to seeing records of this kind. Repeated year as such records are, is it any wonder that t ities representing the type of enterprise whos is thus pictured, should continue to grow among investors of all classes?

A Seasoned Investment *Netting 6%*

First mortgage bonds of $500 and $1000 denominations.

Cash investment in security over four times bond issue.

Original loan reduced 25% by serial payments.

Sinking fund has always exceeded bond requirements.

Old established company.

Capable management.

Ask for Circular No. 734L

Peabody, Houghteling & Co.

(Established 1865)

10 S. La Salle Street CHICAGO

Increased Returns Are Available Now

from sound investments which in normal times sell much higher and, in consequence, cost more and yield less.

You will find our current list of offerings contains many helpful suggestions for sound and profitable investment.

Circular H-39 Sent on Request

White, Weld & Co.

The Rookery Chicago | 14 Wall St. New York | 111 Devonshire St. Boston

SOUND BONDS

INCREASING SECURITY

¶The property of the company whose bonds we offer has been conservatively valued at its actual worth in 1912. Because of the rapid growth of the section the company serves the value of the property has been, and is, rapidly increasing.

¶The mortgage is closed—no more bonds other than these will be issued—and each year a large number of bonds are redeemed.

¶Hence the security behind these bonds is steadly increasing.

Price to Yield 5½%

Send for Circular W

P. W. Brooks & Co

(Incorporated)

Stock Exchange Bldg. Philadelphia | 115 Broadway New York

Bonds Which Are Unsatisfactory

to their owners can in many cases be exchanged for more suitable investments on a basis which will react greatly to the advantage of the investor. The value of trading certain bonds and stocks at certain times is fully explained in a special pamphlet we have just prepared on this subject. The reasons why it is many times beneficial to make a trade are not appreciated or understood by the average investor. Therefore, we invite requests from those unfamiliar with the subject for our Pamphlet No. T-85.

A. B. Leach & Co.

Investment Securities

149 Broadway, New York

105 So. La Salle St., Chicago

Boston, Buffalo, Philadelphia, Baltimore, London, Eng.

6% DOUBLES YOUR MONEY in twelve years

when the interest is regularly re-invested at the same rate.

YOU ARE ENABLED
by our 6% service to follow this consistent plan in making your investments—and you can have your choice of Municipal, Timber Land and Guaranteed Real Estate Bonds and Individual Farm Mortgages.

YOU ARE INSURED
by our guaranteed service that your principal and interest will be paid promptly when due.

THE SECURITY
of the Farm Mortgage is indestructible. You do not have to rely on a fire-insurance policy to protect you.

Denominations $100, $500, $1000

Even if you are not seeking an immediate investment, you will find our Picture Booklet "Down South," both instructive and interesting.

Ask for Booklet No. 113 A

MORTGAGE SECURITIES CO.
CAPITAL PAID IN $600,000.
P. H. SAUNDERS, PRESIDENT - LEVERING MOORE, ACTIVE VICE PRES.
WHITNEY-CENTRAL BLDG. NEW ORLEANS

CAREFULLY SELECTED

Farm Loans

In a rich, productive and growing agricultural section are offered to investors seeking the best rate consistent with the highest grade of security.

We make these Mortgages through our Loan Committee under the strict Banking Laws of Texas and subject to State Supervision and Examination.

We invite correspondence from investors and investment agents.

Standard Trust Co.

Capital Paid - - - - - $250,000.00

SAN ANTONIO, TEXAS

A Land Mortgage Bank Exclusively.

6% Net SAF

Your Investmen
Responsi

6% NET Mo

Personally a
Security and
of every L
Company.
Mortgages p
knowing tha
Principal wil

Current L
on

BICKELL, KY
I

Towner,

SEATTLE

Earnin

Send your inv
bring you in th
out sacrifice of s

The *seven*
money will earn
proved city and
state can be ta
employing our a
we have not los

Write for list

Joseph E. Th

105 Cherry S

First Mortgages that yield 5½%

Land produces the greatest amount of wealth. It is, therefore, the nearest approach to certainty as security for an investment.

Invest, then, in mortgages covering land that produces standard crops. In particular, buy Ward-Harrison Mortgages, so you may be assured that they have been passed upon by an experienced organization.

Ward-Harrison Mortgages are in bond form with interest coupons attached. The security back of them consists of well managed farms in 12 Black Land Counties of Central Texas, which raise over a million bales ($55,000,000 worth) of cotton per annum—one-fourth of the Texas cotton crop.

We loan our own money, only after careful, expert investigation, on choice lands, and offer to investors the original Mortgage documents. Interest is collected by depositing coupons in your own bank, payable through the National City Bank in New York. We recommend these Mortgages as safe and conservative for individual investors.

Send for our interesting, illustrated Booklet W-1 and list of offerings.

Our valuations are your protection

Ward-Harrison Mortgage Co.

Fort Worth, Texas

At 5%

When bonds of standard railroads like Southern Pacific, Atchison, Baltimore & Ohio and others are selling to yield 5%, why go further and take chances?

I have no securities of my own for sale.

There is no charge for consultation by mail or in person.

C. M. Keys

Dept. H-39

35 Nassau Street, New York

6% WITH SAFETY

Caution as to security both as to the legal status of a loan and the protection in *value* of property on which the loan is made are essentials.

This concern is more than cautious in every phase of placing loans for its clients.

The company's attorneys are men trained in legal work of this nature.

Our investigations are made first hand by experts on the ground.

For these reasons our

Georgia Farm Loans

are particularly attractive to those who have surplus funds for investment.

We attend to all details such as the payment of insurance, taxes; attend to collections, etc.

We offer 40 years' continuous experience in this work as an additional protection.

Write for literature.

Established 1870

The Southern Mortgage Co.

Atlanta, Ga.

MORTGAGES 6% Farm—7% City

We offer our mortgages to you as a sound investment, and only after careful examination of each property.

EIGHT LIFE INSURANCE COMPANIES attest the soundness of these mortgages by purchasing in increasing volume.

Our mortgages are placed on income-bearing properties only and on a basis of but 40 per cent. of actual value.

Collections are made without cost to investors.

INTEREST AND PRINCIPAL REMITTED BEFORE DUE DATE BY NEW YORK CHECK.

Twenty-one years' experience—never a loss to an investor.

Reynolds Mortgage Company

R. B. BISHOP, *Vice-Pres.*

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6% NET
38th YEAR

SAVE SMALL SUMS

You could accumulate more cash capital in a very few years by saving up comparatively small sums of money—your dividends and interest income, for instance.

You probably never seriously considered such a thing, because the amounts looked so small and no opportunity has ever before offered itself to you to save and invest only $25.00 at 6 per cent interest. There is no need for you to wait until you have saved up $2,000, $500, or even $200 with which to buy one of our mortgages in order to secure a 6 per cent investment with us. Our Certificates of Deposit yield 6 per cent, payable semi-annually—the same as our mortgages—and are withdrawable after one year, on 30 days' notice. Send $25 today; ask for Loan List 708.

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NORTH DAKOTA Farm Mortgages 6%

33 years' residence; 30 years making Farm Mortgages, without the loss of a dollar interest or principal. Write for information No. 29.

WALTER L. WILLIAMSON
Lisbon, North Dakota

Minnesota and Dakota Farm Mortgages

Well placed first mortgage farm loans are always dependable. They yield a higher rate of interest (6%) than most forms of investment. They do not fluctuate in value. You KNOW that you will receive an income which can be counted upon in advance.

Our mortgages, made at our own banks, are absolutely first class investments. We take care of the collection of interest and remit free of charge to the purchaser. No waiting for interest or principal. We have loans in amounts from $500 to $10,000.

Write for our list of offerings.

THE BANKERS FARM MORTGAGE CO.
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Yielding 6% and 6½% net. First mortgages secured by improved diversified farms in the Willamette, Wallowa, and Grande Ronde Valleys in Oregon. These valleys are the most fertile and prosperous diversified farming districts in the Northwest. *Write for current mortgage list and pamphlet.*

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1009 Spalding Bldg. **PORTLAND, ORE.**

6% COLOR MOR

You would not thin without the aid and ad especially fitted him to strument over another.

When investing, exer

Our acquaintance an this great, productive, select the best mortgag

Bear in mind, the sec

Corresp

THE HOME LOA
S. G. McMullin, Presid

SOUTH CARO
Attra

We can place your mon Mortgage on a High Cl cent. of the value of th three to five years but int hold Mortgages, Abstract

South Carolina is a ver you should know what th say about our farm lan

We issue Certificates o Dollars and up, payabl pay Five per cent.

One of the above pro

CITIZENS BA
Bate

5% DA FARM

Will bear tion. Ou to localitie tried and p

Fifty-six y lending on farm l single dollar means want safe investme

Write for our ne

A. G. DANFO
Founded A. D. 1858

A Safe, —Inv

Capital is recogni OKLAHOMA Farm M

We confine our loans Oklahoma with which w gages are absolutely sa

Over $2,500,000 sold

Write us for details more through us than and references will inte

GEO. R. FISH
Ardmore,

OKLAHOMA 6% NET MORTGAGES

Mortgages—
on well located farms—
producing crops
for which there is
an active and regular market are

A Fundamental Investment

and when you realize that
they pay 6% annually—
can you think of a *safer*,
more *desirable* investment?

Send for our booklet "MORTGAGES" and May list of offerings

Oklahoma Farm Mortgage Co.
Oklahoma City, U.S.A.

6% FARM MORTGAGES 6%

A Thirty-Year Record

For over three decades we have dealt in First Farm Mortgages on fertile farm lands in this section. During that period no customer has ever suffered a loss in either principal or interest in dealing with us.

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Therefore we are able to search out every detail of a loan and live up to our principle of conservatism.

We offer investments in amounts to meet individual needs, netting 6% collected and remitted free:

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Est. 1883 Capital and Surplus over $350,000.00

E.J. LANDER & CO.
GRAND FORKS, N. DAK.

PROTECTED INVESTMENTS PAYING 7%

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Safety of principal and 7 per cent. net annual interest payable quarterly assured. In the past thirty years we have placed more than $15,000,000 in these loans without a single loss to an investor. Write for illustrated booklet and complete information.

The Fisher Real Estate Agency, Pensacola Florida

Farm Mortgages Guaranteed

Central Texas **6%** *Thirtieth Year*

Write for particulars
THE W. C. BELCHER LAND MORTGAGE CO.
FORT WORTH, TEXAS
Capital and Surplus $820,000.00

District Municipal Bonds

carefully selected from the principal cities in the State of Washington to yield the investor from

5% to 7%

We sell these bonds to Savings Banks. Why not to you?
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By First Mortgage on Improved City and Farm Property.

Both principal and interest protected with ample security.

Risk practically eliminated. Every transaction is investigated by an expert on values and our appraisals are more than conservative. Our literature and lists will open to you a new channel for profitable investment in large or small amounts. Mailed on request. This is the fourth year our advertising has appeared in *World's Work*.

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Invest in first mortgages — a good income. We have them here in Oklahoma City on high class, improved real estate where the actual value of the property is three times the amount of the loan — ample security.

Shall be pleased to send you upon request our free booklet describing our business and list of loans. We have loans of from $250.00 to $10,000.00.

AURELIUS-SWANSON CO.
20 State National Bank Bldg. Oklahoma City, Okla.

Double your income on your savings

The rapid development of Wyoming makes it safe for us to pay 6 per cent — because Wyoming legal interest rate is 8 to 12 per cent. Our stringent banking laws give you the same protection you get at home. ***Write today for free booklet.*** Why be content with 3 to 4 per cent when we will pay you 6 per cent. Resources over $100,000. In the rich Big Horn Basin.

39 Pioneer Street Basin, Wyo.

Pioneer Trust & Savings Bank

SIX PER CENT SCHOOL DISTRICT BONDS

Exempt from the federal income tax. coupons and principal collected as heretofore without requiring any certificate of ownership.

DENOMINATIONS
of $100, $200, $250, $500 and $1000
Price: 104 and Interest

Yielding from 5¼% to 5⅝%, according to maturity. An unusually attractive price for this class of security.

10 **Write for Descriptive Circular No. E**

WALTER E. ORTHWEIN. EST. 1898
220 N. FOURTH ST., ST. LOUIS, MO.

For 56 years we have sold

Iowa Farm Mortgages

Over a *Thousand Dollars* a Day of interest paid to clients without delay or loss. Address for details, Mortgage Dept.

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Waterloo, Iowa

Our Method

to reach prospective property buyers is explained in the new Real Estate Circular just issued.

Do You Want to Know About It?

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¶ The people of this country have lost $129,000,000 during the last two years through investing in get-rich quick propositions controlled by fraudulent concerns.

¶ Schemes of this nature are skillfully presented, and it is sometimes difficult to distinguish between the sound and the unsound investment.

¶ Readers of THE WORLD'S WORK should consult our service department before investing their earnings.

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will come when the post-office people at your place handle the last ou postmarked "May 28th." If you don't see this notice (or don't attend to i have no time to write a letter enclosing the remittance, you can TEL or telephone to our nearest office. A set will then be reserve

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We cannot describe the contents of the Britannica proper space, but you must already have heard it praised by people The facts about the offer are all here.

You will find at the end of this brief notice an order form that shows you that your Britannica in almost any way you wish—choosing, for example, the **system of monthly payments**—*or paying as little as $5.00 a month.*

"Make hay while the sun shines!" is a good saying. If you do **not order** Britannica now, at the low price, it is **absolutely certain** that you will **have to** without it; for May 28th ends the sale at the temporary prices.

WHY YOU MUST HURRY

This first sale of the Britannica, which is just ending, is at very low prices, in order to popularize the book as rapidly as possible.

You will realize very quickly how low these prices are, when we tell you that **$1,500,000** was paid for contributions and for the eight years of editorial work, before a single sheet of paper was printed. And **$2,500,000** was spent in manufacturing the first batch of sets. So that there was actually **$4,000,000 locked up in the Britannica before the publishers began to get any of their money back.**

Such a large sum of money cannot be left outstanding indefinitely. And the price is now being raised so that **people who buy the book after May 28th will make a larger contribution toward the preliminary expenses** by paying $29 more than you need pay now.

In one way, too, this "hurry-up" is just as much for your good as for the publishers'. You must have heard enough about the new Britannica to know it is a book you ought to use, and to give your children a chance to use. And very likely you have for some time had it in your mind that you would buy the book some day. But what a man can do any time, *he is pretty likely* to put off doing all his life. **The *plain fact* is that anybody who wants to buy the *Encyclopaedia* Britannica at the cheapest price, and *on the easiest* terms of payment, must act at once—*signing* and sending in now the order form (on the last page of this advertisement Otherwise he will let the chance**

A FEW FACTS ABO WORK

29 VOLUMES.

44,000,000 WORDS OF TEXT.

41,000 ARTICLES.

30,024 PAGES.

14,689 ILLUSTRATIONS.

450 FULL-PAGE PLATES IN BLACK IN COLOR.

300 MAPS, SHOWING 125,000 PLACES

500,000 SEPARATE REFERENCES IN T

There are 1,500 contributors, of 21 di including the chancellors, presidents 54 universities and colleges, besides 65 of the faculties of these and 92 other 101 members of the staffs of observatc and surveys; 126 ambassadors, diploma of various governments; 327 historians; ists and biologists; 62 business men an 75 physicians and surgeons; 72 enginee 75 lawyers; 161 theologians; 79 nav officers; 93 chemists, physicists, and m meteorologists, geologists and astron phers and explorers; 72 economists well as other specialists of other b all, 64 distinct professions and occ

$29. TO $50. M

cording to the bindings—that will be the difference after the end of the sale.

An Effort Worth Making

Even if you have to make some sacrifice to buy the itannica, **as a good many subscribers tell us they doing,** it is worth making sacrifices for. The all first payment—all we ask for now—is **nothing** in mparison with what the Britannica can do for you and **your whole family,** within a few weeks after you e put it into your home.

For the Young People

Nothing does children more good than the use of a set the Britannica. Even before they are old enough to d the volumes themselves, they will be instructed, as ll as entertained, whenever you show them some of 14,689 pictures in the book, and tell them what it s about the marvels of art and nature.

Sending your order today is making sure that **your ldren will have their fair chance.**

No. 2. BOOKCASE

"Strike While the Iron Is Hot!"

sound advice. If you let May 28th slip by before lering the Britannica, you will lose $29 or more. **And would be a much more serious loss than that if you ver ordered it at all, which might easily happen if u don't do it now.** Next month you certainly would enjoy paying the increased price, for you will remem- that you could have got the book cheaper before y 28th. *Perhaps you could perfectly* well afford to *$29 more in June;* ***but a man hates to admit to self that he has let a good chance slip,*** and that he *juring himself for being behind-time.*

The Bookcases

We supply, to subscribers who want them, special bookcases, in three styles, for the Britannica.

No. 1 has the advantage of **holding the volumes at a slope,** which is a great comfort to any studious person using the Britannica for hours every day.

No. 2 takes the volumes in two tiers, and is very convenient in a small room, as it is only 19 inches wide.

No. 3, costing only $3, is a thoroughly sound case, holds the volumes at a slope, and will suit anyone who would like to stand his set, in this case, **on a table or desk top.** But of course it is not so handsome as No. 2.

The prices of these bookcases are shown in the order blank on the other side of this page.

The special bookcase for the Full Suede set is included in the price of that binding.

Dates for Deliveries

If you order **within 48 hours** after this magazine reaches you, you ought to be in time to get one of the sets that are now printed and bound and packed **all ready for immediate delivery.** Of course we cannot absolutely guarantee that you will not have to wait a little while, even if you order in the beginning of May; for this notice had to be prepared at the end of March, and when it was written we couldn't tell how large a demand there might be during April.

One thing, however, is quite sure. If you wait until the very last moment, and order only a few days before May 28th, you will have to wait until the end of July, or even until August, for your set.

First Payment Now and Delivery at Your Convenience

If you are going to be away from home this summer, or for any other reason you would rather not have your set delivered until September or October, you can pay $5 now, and have the volumes held for you until Fall.

We suggest this because we know that at the beginning of summer many readers will be taking a vacation, and if it will suit you just as well to have your set delivered later, it will **suit us a great deal better; for we shall have all we can do** to ship sets fast enough to those people who are in a hurry to use them.

No. 3. THE PORTABLE STAND

END OF THE SA

is so near that you have no time to waste, and if you live anywhere near one of our offices, can go in and see the various styles of binding at any of the addresses on the bottom of th

During the last week our offices will all be open until 8 p. m. on Monday, Tuesday and Wednesday, May 25th, 26th and 27th, and until 12 o'clock, midnight, on the evening of Thursday, May 28th.

If by any chance you should not see this magazine until the last moment, you can secure a set on Thursday evening by telegraphing or telephoning to any of these offices.

The India Paper and the Bindings

The India paper used in the new Britannica makes the book three times as light, and one-third as bulky as the cheaper paper used in ordinary books.

India paper has never before been us volumes of such size. The public quickly d it made the new Britannica a delightful while one sits in an armchair, instead of over the table on which a heavy volume rest. Our introduction of this delightful p sally recognized as a great revolution in t business.

Another revolutionary improvement w that the Full Sheepskin, the Full Limp S Full Morocco bindings all have flexible the volume opens out as flat as a sheet and lies open without having to be addition to this, the sides volumes (which are as friendly to the hands as glove) are so yielding tha can be rolled up in the ha into a grip or a coat poc the best of reading on a

The FULL MORO ing is necessarily expen recommend it only to pe buying for presentation to

The SUEDE, with surface, its corners round book style, and its tasteft is so unusual and fascinat really quite as attract higher-priced Full Moro

The FULL SHEEPS is a rich dark green colo and will wear as long an the Morocco. Only the have seen the Suede or th rocco can believe it to be any book could be handsom

The CLOTH binding oughly sound workmanship

If any one of our staff w a personal friend which bin better buy, the answer wo be: *"If you haven't got t "little more expense, buy "If you feel just now like "buy the Sheepskin. If yo "the Cloth is the best you ca "it, and put the other bin "your mind—and you will "with it."*

If you buy a Cloth se will at any time exchang of the leather bindings, to pay only the present between the two, notw ing that the differe have become ver larger.

As 97 per cent of our chosen the India paper, we ha space by lengthening this order the case of the exceptional prepa printed on the thick paper. But to one of our offices for a spec sending $5 to reserve a set set in Cloth now costs $1.50 volume less than the Cloth bou with or 20 monthly payments of $20 more after May 28th.

THE ENCYCLOPAEDIA BRITANNICA CO.,
120 West 32d Street, New York.

ORDER FORM
for India Paper

Please send me the new Encyclopaedia Britannica, 11th edition, 29 volumes, published by The Cambridge University Press, of England. I enclose $_____ being (first payment / payment in full) and I agree to send the second and all subsequent payments on the corresponding day of each following month until payment is complete, in accordance with the style of binding and the terms of payment indicated by the X I have placed in one of the squares below, showing my selection. It is agreed that I shall keep the books, but the title does not pass to me until the total amount has been paid. Terms, F. O. B. N. Y. Please indicate binding desired by marking X in one of the squares.

☐ **CLOTH** (ordinary covers).

31 monthly payments of	$5.00	After May 28th this price will be $29.00 more.
20 " "	7.50	
14 " "	10.00 and 1 of $5.00	
12 " "	11.87	
8 " "	17.59	
4 " "	34.81	
Cash Price	137.75	

☐ **FULL SHEEPSKIN** (flexible).

37 monthly payments of	$5.00	This price will be $36.50 more after May 28th.
24 " "	7.50	
17 " "	10.00 and 1 of $5.00	
12 " "	14.29	
8 " "	21.22	
4 " "	42.06	
Cash Price	166.75	

☐ **FULL LIMP SUEDE** (Prayer-Book Style).

46 monthly payments of	$5.00	This binding will cost $45.00 more after May 28th.
30 " "	7.50	
22 " "	10.00	
12 " "	17.89	
8 " "	26.65	
4 " "	52.94	
Cash Price	210.25	

☐ **FULL MOROCCO** (flexible).

47 monthly payments of	$5.00	After May 28th this binding will cost $50.00 more.
30 " "	7.50 and 1 of $5.00	
22 " "	10.00 " 1 " 5.00	
12 " "	18.52	
8 " "	27.56	
4 " "	54.75	
Cash Price	217.50	

_____ 1914.

Name _____

Address _____

Occupation _____

If in business add business address. _____

If you want a bookcase, please mark X in one of the squares below.

☐ (1) Single tier, solid mahogany: $14.50 cash (or 3 monthly payments of $5.00 after payments for the book are completed).

☐ (2) Two tier, solid mahogany: $36.75 cash (or 2 monthly payments of $5.00 each).

☐ (3) Portable oak stand; $3.00 cash.

W.W.—1

A Record Growth

From small beginnings in 1810 ne Hartford Fire Insurance Com- any has, in 1914, reached its resent preeminent position in the re insurance field. Its steady rowth in strength has been unre- rded by the enormous losses it as paid to its policyholders both the great conflagrations of merican History and in those small but persistent losses which occur somewhere every minute of every day and night.

Willingness to adjust losses fairly, ability to pay fully and readiness to pay promptly are the three great fire insurance virtues and they are the explanation of the **"Hartford's"** growth and prosperity.

When you need Fire Insurance

Insist on the "Hartford"

The Readers' Service gives information about insurance

"The Roll of Hon

THE reputation of the H. W. Johns-Manville Company has been earned by an unwavering purpose to make only the best materials. Its record of over half a century of roofing achievements is unparalleled, and the full force of this record is behind each roll of

J-M ASBESTOS ROOFING
"The Roll of Honor"

To ask for "J-M" is synonymous with asking for "The best money can buy." There is not a single doubtful inch in any roll of J-M Asbestos Roofing. Made from Pure Asbestos Rock and Trinidad Lake Asphalt, it is a sheet of pliable stone. Being rock, it endures on its own inherent qualities and requires no protection, such as paint, gravel or sand. Resists fire, climate, acids, gases, chemical fumes for all time.

Every roll made by a $5,000,000 company whose only known standard has always been "Honest Quality."

Users of rubber type roofings can get J-M quality in J-M REGAL ROOFING.

These roofings are furnished ready to lay with J-M CLEATS, the most efficient roof fastener.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos Shingles; Roofing; Stucco; Pipe Coverings; Cold Storage Insulation; Waterproofing; Sanitary Specialties; Acoustical Correction; Cork Tiling; Fireproof Doors, etc.

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ASBESTOS

The Readers' Service gives information about Real Estate.

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(Illustrated)

by William H. Walling, A. M., M. D., imparts in a clear wholesome way, in one volume:

Knowledge a Young Man Should Have.
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Knowledge a Mother Should Have.
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Hundreds of our readers get inform advice on their investments by return shall be glad to help you. Address

READERS' SERVICE DEPARTM
Doubleday, Page & Co
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re You Ætna-ized

Five Thousand Dollars Cash

A man was accidentally killed in a train wreck. (It might have been you.) He was on his way home. He had earned a good salary, but had saved little, and his funeral used that little up. His widow and children were left, as they thought, penniless. In his desk, however, a "Folded Paper" was found, which he had obtained only a few months before. It was

An Ætna Accident Policy

It brought to that sorrowing and well-nigh penniless family a check for FIVE THOUSAND DOLLARS.

Thousands of accidents occur every day. It may happen that *your life* will be snuffed out; that *you* will suffer dangerous injury or the loss of hand, limb or eye.

Sometime *your* family may have use for the "Folded Paper" that means food, clothing and shelter to those you love. Ætna Accident Policies cost little and pay a generous weekly indemnity if you are kept from work by accidental injury.

Better To-day than Too Late

Fill out this coupon and mail to us to-day

a Life Insurance Co. (Drawer 1341) Hartford, Conn. World's

ave marked the kinds of Insurance I wish to know about. Accident☐ Health☐ Disabili

under 60 years of age. My name, business address and occupation are written be

"But Doctor—I can't get away now for a Rest"

WHEN the nerves cry out—and when the bonds of business, home ties, or the expense of travel, hold the sufferer to the beaten path—a good tonic may bring timely, restorative help.

The very aid the nerves need to *rebuild* them, to give back the health and courage drained by work or worry, is brought to them by Sanatogen. And this nourishing help comes in a form that makes it natural and easy for the depleted cells of the system to absorb it.

When more than 19,000 American and European physicians, over their own signatures, speak of this efficiency of Sanatogen as a restorative help, when famous men and women everywhere write grateful letters to tell of the great and lasting benefit Sanatogen has conferred upon them—need you hesitate to test the value of this help for yourself?

Sanatogen is sold by good druggists everywhere, in three sizes, from $1.00.

Arnold Bennett, the famous novelist, writes: "The tonic effect of Sanatogen on me is simply wonderful."

Sir Gilbert Parker, M. P. the eminent novelist-statesman, writes from London: "Sanatogen is to my mind a true food-tonic, feeding the nerves, increasing the energy and giving fresh vigor to the overworked body and mind."

THE BAUER CHEMICAL CO.
26D Irving Place New York

Grand Prize, International Congress of Medicine, London, 1913

SANATOGE

Send for Elbert Hubbard's new book—"Health in the making." Written in his attractive mann with his shrewd philosophy together with capital advice on Sanatogen, health and contentmen Tear this off as a reminder to address THE BAUER CHEMICAL CO., 26D Irving Place, New

THE · TALK · OF · THE · OFFICE ·

"To business that we love we rise betime
And go to 't with delight"—*Antony and Cleopatra.*

KIPLING SIGNED SETS

URING May two more volumes of The Seven Seas Edition will be published, including "Plain Tales From ills," which is signed by Mr. Kipling's en. The sheets had to be prepared long ance and sent to Mr. Kipling's home in sh, England—1050 copies of them. These ned in ink and returned to Garden City, they were bound and will be delivered onth to subscribers. Future generations lue this set. What would one now give t of Eliot, or Dickens, or Thackeray, or signed by the author — a definitive ?

THE PARCEL POST

ook the United States Government one nd two and a half months to decide to books to come under Parcel Post rates. -gallon silk hat, bulky but light, could in the mail more than a year ago, but pact book, even were it a very spouting in of wisdom, was ruled out. However, ese things are past, and now we are g up for lost time. Several men in n City are spending all the day in "routrcel post" packages, and our direct sales nds out of reach of bookstores are ing, as the enterprising merchant says, aps and bounds."

nay take a long time to inculcate the but we ask our readers, the next time e a book mentioned as being published ubleday, Page & Co. to reach for a postal cut the notice out, mark the advertise- or do the easiest thing that occurs to let us know that you'd like to see this r books — we will do the rest, and you y with your monthly bills at your conce.

ou are like most people, you will think of books you wish you had ordered when nind was on the subject. We do not wish erfere with the trade of the bookseller; we wish that every locality in the United States had a good bookseller; our suggestion is addressed to readers who don't go to bookstores or have no bookstores to go to. Doubleday, Page & Co. catalogues for the asking.

A stack of ten thousand copies of
THE HARVESTER.

This is a picture of 10,000 copies of the new and cheaper edition of Mrs. Gene Stratton-Porter's book, "The Harvester." The first edition, completed in March, was twenty-five of these piles — 250,000 copies. We are just finishing up a second edition of ten more of these piles — 100,000 copies — 350,000 copies printed and bound in March and April, to say nothing of many thousand copies of "Freckles," "A Girl of the Limberlost," and "Laddie," the latest book of all and always a "Best-Seller."

FROM THE EDITOR'S DESK

Recently the WORLD'S WORK recived the following letter.

In the March number of your magazine, there is an article by James Middleton, on "Radium." This is one of the best articles containing general information for the ordinary layman that I have ever seen. We would like very much to use this article to distribute in a general way and would like if you would give us a price on one hundred (100) copies of this magazine for free distribution: or what would you charge for a thousand (1,000) copies of this article alone in pamphlet form?

There are many requests for a price on quantities of certain issues and we are glad to sell them in such lots at a special price. The request for permission to reprint the article in pamphlet form is also common. Every month some article in the magazine attracts some one enough to wish to reprint it and circulate it as a pamphlet to a list of his friends, or quite often to a list of possible customers. The magazine very much appreciates the implied compliment in these requests but it has found it necessary to refuse them.

In the first place it is not possible to have every article in a magazine interest every reader. Some articles interest one set of people and other articles interest other sets. If the people who are attracted by one article have it supplied to them free as a pamphlet, they lose an incentive to buy the magazine and the cost of producing the magazine falls upon the readers of the other articles.

In the second place such reprints, sent out with advertising matter, which is usually what they are wanted for, tends to make the reader believe that the WORLD'S WORK was editorially pushing the interests of some particular company. The WORLD'S WORK, of course, has no such intention. As a matter of news and of interest to its readers it often mentions particular men, companies, and organizations, but what good or harm comes to them from such mention is not the motive which pro WORLD'S WORK. It is devoted to giving its readers interesting an tive reading and illustrations.

Next month the WORLD'S WORK lish "Art That Is Real and Ame Gutzon Borglum, the sculptor. I lum has had a picturesque caree achieved eminence in the arts th originality of his philosophy a through his technical skill with t He will describe the ideas that his vigorous and beautiful sculpt article will be illustrated with sixt of reproductions of his work.

"Uncle Sam, Expressman," b J. Hendrick, will tell in text an what the parcel post has done in t een months of its operation: h brought twenty million people int tion, how it has altered the rel tween the cities and the country means to the railroads, and w effect on the express companies.

Clara Brown Lyman will des new systems of illumination that the eyesight of workers in offices and shops as well as in the homes Fearing will tell how "placing cieties are saving orphans from th routine of institutional rearing. Oskison will describe the remarka and the useful inventions of Ed Acheson. W. W. Peter's story of ceeded Nevertheless" will appea issue. A character sketch of Arthur T. Hadley, of Yale Univer be another article in the June num Henry W. Lanier will describe ne of "The Latest Business Gold- the moving picture industry that h a new group of American millio the last six years. Allen P. Ame how the Weather Bureau saves m dollars yearly to the business farmers of the United States.

P. A. makes men pipe hungry

Just you get a whiff of "the national joy smoke," and it's dollars to doughnuts you beat it to the nearest store that sells tobacco and stock up. The flavor and aroma of Prince Albert has sure got 'em all backed off the boards.

Just figure on *that*, then realize P. A. *can't bite your tongue*, because the bite's cut out by a patented process. No other tobacco can get in the same class with

PRINCE ALBERT

the national joy smoke

You go to P. A. just like a baby puts its little hand out for candy, *natural like!* It's so delicious that you smoke it all day and all evening—*and there's no comeback!* You make a mental note of *that!*

You can buy P. A. wherever tobacco is sold—and in every civilized country in the world! Toppy red bags, 5c; tidy red tins, 10c; also in pound and half-pound humidors.

R. J. REYNOLDS TOBACCO CO.
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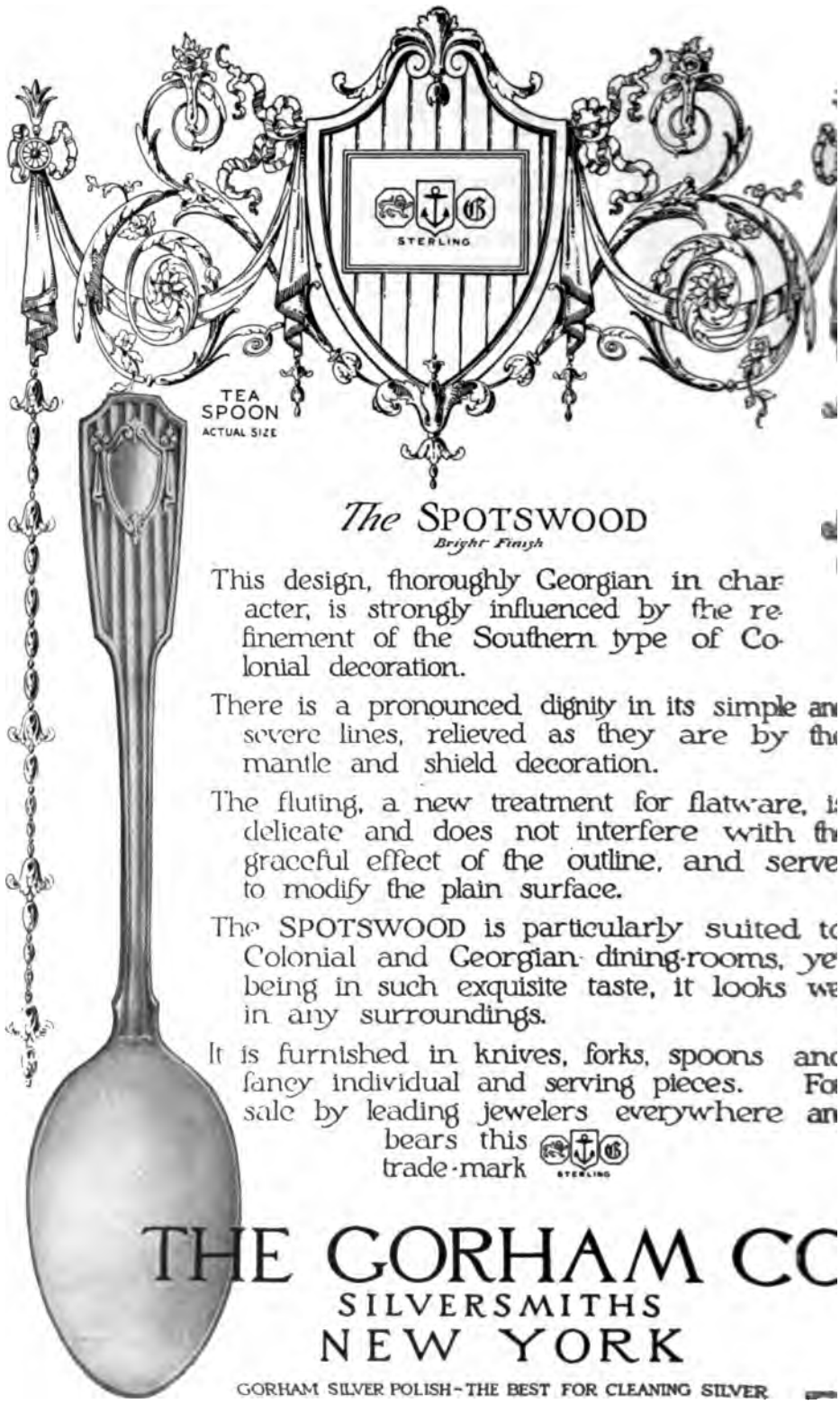

The SPOTSWOOD
Bright Finish

This design, thoroughly Georgian in character, is strongly influenced by the refinement of the Southern type of Colonial decoration.

There is a pronounced dignity in its simple an severe lines, relieved as they are by th mantle and shield decoration.

The fluting, a new treatment for flatware, i delicate and does not interfere with th graceful effect of the outline, and serve to modify the plain surface.

The SPOTSWOOD is particularly suited t Colonial and Georgian dining-rooms, ye being in such exquisite taste, it looks we in any surroundings.

It is furnished in knives, forks, spoons an fancy individual and serving pieces. Fo sale by leading jewelers everywhere an bears this trade-mark

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SILVERSMITHS
NEW YORK

GORHAM SILVER POLISH - THE BEST FOR CLEANING SILVER

Hamilton Watch

"The Railroad Timekeeper of America."

ALL considerations in watch buying radiate about accuracy as spokes about a hub.

Any jeweler will tell you this. Also that close timekeeping—second for second with Government Observatory time—is what sells the Hamilton Watch.

Accuracy is the thing everybody wants but that railroad men must have. That is why

Over one-half (56%) of the Railroad Men on American Railroads where Official Time Inspection is maintained carry the Hamilton Watch.

Your jeweler, if you ask him, will add to these facts about Hamilton accuracy other facts from his own experience with the Hamilton. If you are interested in buying a fine watch

Write for the Hamilton Watch Book— "The Timekeeper"

It pictures and describes the various Hamilton models and gives interesting watch information.

There are twenty-five models of the Hamilton Watch. Every one has Hamilton quality and Hamilton accuracy. They range in price from $12.25 for movement only, up to the superb Hamilton masterpiece at $150.00.

Your jeweler can show you the Hamilton you want, either in a cased watch or in a movement only, to be fitted to any style case you select, or to your own watch case if you prefer.

HAMILTON WATCH COMPANY
Dept. Q
Lancaster, Pennsylvania

Engineer W. S. Gillette, of the B. & O. R.R., carries a Hamilton Watch. He is one of the thousands who have carried Hamiltons for years with perfect satisfaction.

SAFETY FIRST

Goodrich Unit Molding was the original Safety First tire idea

The quality of Goodrich Tires today is the standard by which all high grade tires are judged. This is because they represent the perfection of tire-making and tire-knowledge — which gives Goodrich Tires their leadership.

Every layer of the finest fabric, the livest, best rubber—the whole tire—tread, side strips, bead and all—becomes one piece in Goodrich Unit Molding—the original Safety First idea in tire building.

All this backs up the Goodrich Safety Tread —the group of bars and the crosstie that form the Safety First symbol for the motorist.

Equip at least the rear wheels with

Goodrich Safety Tread Tires

Best in the Long Run

Here are the prices to pay for the best tires ever produced in the Goodrich factory:

Size	Smooth Tread Prices	Safety Tread Prices	Size	Smooth Tread Prices	Safety Tread Prices
30x3	$11.70	$12.65	34x4½	$33.00	$35.00
30x3½	15.75	17.00	35x4½	34.00	36.05
32x3½	16.75	18.10	36x4½	35.00	37 10
33x4	23.55	25.25	37x5	41.95	44.45
34x4	24.35	26.05	38x5½	54.00	57.30

Dealers almost everywhere have Goodrich Tires in stock or can get them for you from one of our branches or depots.

The B. F. Goodrich Company

Factories: AKRON, OHIO — **Branches in All Principal Cities**

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SAFETY SERVICE AND SPEED

in your car, because it produces the best results from your motor and preserves its life and serviceability

HAVOLINE Oil is refined from *one uniform base*, the lubricating fraction of which is *admittedly superior* to that of other crude oils. This assures you the same high quality and perfect lubricating value regardless of where or when you purchase — the standard being thus *basically* protected.

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Therefore HAVOLINE prevents frictional losses and insures thorough motor efficiency.

Buy only the oil in the Blue Can. Two 5 gal. cans to the case.

Tell us your make and we'll tell you your grade.

Ask your garageman or write to us direct for testimonials of HAVOLINE users who own your make of car.

INDIAN REFINING CO., Dept. G, New York

America's Telephones Lead
Service Best—Cost Lo

from London "Daily Mail"

Why is it that Government ownership and management of the telephones is practically always a failure?

Why is it that throughout the length and breadth of Great Britain and the Continent hardly a single efficient long-distance service is to be found? Wh is it that i York one

from "Elec

THERE is a certain the fact that Mr. angry over the fre other day that he flung his a member of the Governme telephone system, he deserves Office working can inflict. delicat

From "Le Petit Phare de Nantes," Paris

"But today I found I had to talk with Saint-Malo, and, wishing to be put through quickly, I had my name inscribed on the waiting list first thing in the morning; the operator told me—though very amiably, I must confess—that I would have to wait thirteen hours and ten minutes (you are reading it right) in order to be put through."

Herr Haberland

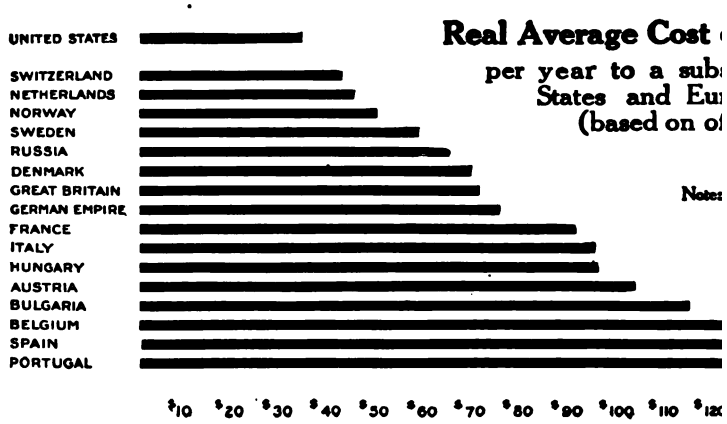
"The average time r Berlin is now 1½ hou suffer considerably o phone facilities, whic seldorf and Berlin an but also between ot Antwerp, etc."

Herr Wendel, in The German Diet.

"I refer here to Freiberg. There the entire telephone service is interrupted at 9 o'clock p. m. Five minutes after 9 o'clock it is impossible to obtain a telephone connection."

Dr. R. Luther,

"In the year 1913, the electro-magnetic beginning of wireles cities of Germany, D habitants, is without



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Vocalist's Meal

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Do not take an athlete's meal when you want to do many hours of brain work at your desk, because muscle foods tend to clog your liver and stupefy you when you are inactive.

For special stress of mental work **DOUBLE YOUR BRAIN POWER** by eating a maximum brainy meal which yields many times the amount of nerve force that is in an ordinary meal.

Inappropriate meals discount every man 25 to 100 per cent, making some men chronic invalids, who accomplish nothing. Unsuitable meals produce unsanitary conditions in the body resulting in adenoids, enlarged tonsils, defective hearing, etc. Faulty circulation, imperfect elimination, impaction, congestion and inflammation produce appendicitis or a condition where the surgeon's knife is a necessity **unless a radical change to appropriate meals is adopted**

You cannot postpone the study of **SYSTEM** in eating. You must learn to **CORRECTLY COMBIN** foods to prevent fermentation and the formation of poisonous deposits which become the basis of dise

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The testimony of aged people who have regained health on a Brainy Diet is conclusive bec have practically no reserve force on which to subsist, therefore they depend absolutely on the ne force in a brainy diet for their restoration to health.

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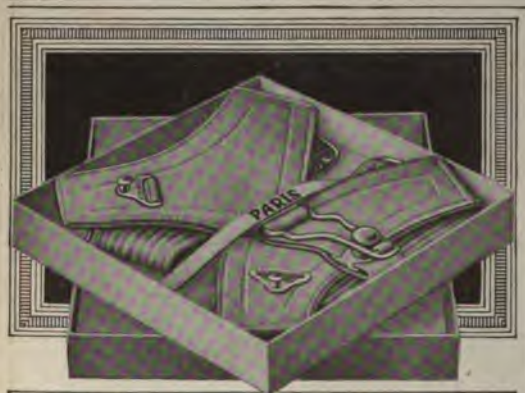

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SEND NO MONEY but **write today** for our big ... of "**Ranger**" Bicycles. You ... dries at prices so low they will astonish you. Also ... **great new offer** to deliver you a **Ranger** Bicycle on ... **free trial** without a cent expense to you. It's ahead ...

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Use it every day

CLEANSE the mouth as well as the teeth. The toilet of the mouth is incomplete without a thorough rinsing with Listerine, an agreeable antiseptic solution that keeps the entire oral cavity sweet and healthy.

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12 DAY All Expense Northern Cruise **$60.00 UP**

Seeing the Wonderful North and Foreign America

including all necessary expenses visiting Halifax, Nova Scotia, the land of Evangeline, and St. Johns, Newfoundland, the Norway of America.

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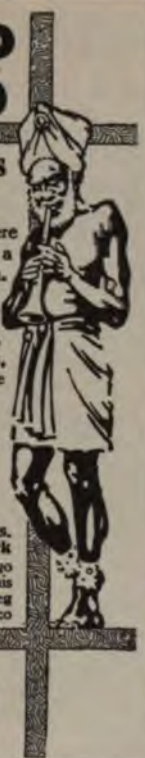

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$620.65 Up

START when and where you will; stay as long in a place as it pleases you. No tourists crowds. You see Europe, Mediterranean, Egypt, India, Ceylon, Java, China, Japan, Philippines, Australia, Hawaii, and cross the American Continent.

First Class Throughout.
Tickets good two years.
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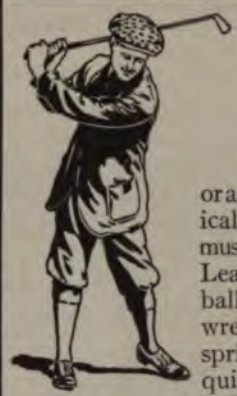

After Golf

or any sport or severe physical exertion massage the muscles with Absorbine, Jr. Leading golfers and baseball players do. So do wrestlers, walkers and sprinters. They know how quickly Absorbine, Jr., limbers up the stiff muscles and joints, stops inflammation and prevents the usual "next day" soreness.

The first game, the first lap around the cinder track, the first of the season's out-of-doors sports does not claim its toll of sore limbs when the muscles are rubbed down with Absorbine, Jr.

Absorbine, Jr.
THE ANTISEPTIC LINIMENT

Is more than a liniment — it is a positive antiseptic and germicide. This doubles its efficiency and its uses.

When applied to cuts, bruises, sores and wounds, it kills the germs, makes the wound aseptic and promotes rapid healing.

Acts promptly in allaying pain and reducing sprains and wrenches.

Economical and convenient to use—only a few drops required at an application. Fragrant and refreshing. Absorbine, Jr., is made of pure herbs and contains no acids or poisons—safe to use anywhere.

Used as a Rub-Down

after violent exercise it puts vim and energy into jaded muscles, limbers the joints and gives the body the glow of health. Make this soothing, invigorating and antiseptic rub-down by adding one ounce Absorbine, Jr. to a quart of water or Witch Hazel.

Absorbine, Jr., $1.00 4 oz. and $2.00 12 oz. bottle at most druggists or delivered.

A Liberal Trial Bottle
will be sent postpaid upon receipt of 10c in stamps.

W. F. Young, P.D.F.
125 Temple St.
Springfield, Mass.

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For enclosed 10c send me postpaid trial bottle Absorbine, Jr., and pamphlets.
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Address.....

GET ACQUAINTED WITH YOUR ENGINE

ALFRED LOOMIS

SUPPOSE a steam engine or similar sound producer is within a short distance of your car, emitting noise enough to cover up the sound of your engine — do you know by instinct what amount to accelerate when letting it into the first speed to keep your driving wheels from spinning around in the gravel? If you are coasting down a hill which has a sharp turn at the bottom, necessitating your braking down to a comparatively low speed — do you know how much to accelerate your engine to make it turn over at a speed with your driving shaft, letting you throw in the clutch without jerking the car forward or back? Can you invariably set your throttle so that on starting your engine it won't speed up with a shrill crescendo and clatter of valves while you wear out your shoes getting back to the steering post to shut off the throttle? These and many other things you must know before you can consider your engine a part of the family.

LEARN THE WORK PERFORMED BY EACH PART OF YOUR ENGINE. IN THE ROCKER ARM TYPE THE TAPPET RODS NEED FREQUENT ADJUSTMENT

Too many motorists think that because an engine is housed up in front of the dash it is intended to be left exclusively to itself with perhaps an occasional oiling of the inlet valves. They don't try to get acquainted with their power plant. If a knock develops they cheerfully run on fifty or seventy-five miles merely because a motor car covers such distances in a very short time. This type of motorist should take a day off and watch the tender, loving care with which almost any motor boat enthusiast looks after his engine. He should watch him oil it and screw down the grease cups every hour; see him pat the cylinders occasionally and take a look at the circulation outlet to see if the proper amount of water is flowing through the jackets; notice him start and adjust the carburetor if a cylinder backfires; and pray with him as he feverishly switches off and removes the crank case handhole cover if the slightest suggestion of a pound occurs.

There are at least two reasons why the owner of a marine engine takes such care of it, neither of which applies to the automobile owner: if a marine engine breaks down there is no getting out and walking home; and, it is impossible to get away from the kicker installed in a small boat — it is always in evidence — if you are capable of hearing anything you hear it, and if you look anywhere but dead ahead you see it, and if it overheats you smell it.

You, as an automobile owner may be unable to do all these things but you should at least pro boatist's example and get acquainted w Learn to know its hum when it is in go that the slightest variation from that you that something is not as it shoul listening to an engine you will hear ju of little noises, but experience will t you the hum of the fan from the air intake, and the gentle tap of the loose inlet valve push rod causing a ta

apart, or monkey with the ignition or c justment, for the trouble is likely end in the carburetor which will not alw at low speed in the adjustment set speed at which the motor is usually ru

But whether you are content to let yo hammer and allow the carburetor to pu tenor of its way, in addition to many o small or large import, above all observ things. Find out what mileage your car a tankful of gasoline and fill it up befor This is not really important for a failure of gas only stops the engine without hur sitating a long hike to the nearest garage two items are of major importance. long your radiator will go without refillin fill it twice in that period, for improper co as bad as insufficient lubrication, which b last of these important duties. Discov oil your engine consumes and always kee at least half full. Too much oil mean haust and sooty spark plugs, but too spells ruin in capital letters. By runnin distance without oil it is possible to score burn out your bearings, and run up a ga will teach you much better than I c quainted with Your Engine.

DSON Six-40
$1750

Now Supplied with a 5-Passenger as well as a 6-Passenger Body

The Triumphant Six

e verdict is in on this LIGHT HUD- Six-40. The demand is overwhelm- far beyond expectations and beyond apacity. This lightness, this econ- this beauty and price have won a ɔh unmatched in all HUDSON his-

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e HUDSON Six-40 came out this to find Motordom hungry for Sixes. t offered a Six at a price unmatched type of a high-grade car.

ame into a field filled with men who t lightness. With men who called wer operative cost.

as given you lightness combined with th. It weighs 450 to 1,200 pounds than other like-capacity cars. By ghtness, plus a new-type motor, it mensely lowered operative cost.

It came with this new streamline body. With two disappearing tonneau seats. With concealed hinges, with "One-Man" top, with quick-adjusting curtains. With distributed weight—gasoline tank in the dash—extra tires ahead of front door. It came with more attractions in design and equipment than you ever had seen in a car.

Met Men's Ideals

In all these ways the HUDSON Six-40 met the ideals of legions. It is everywhere known as "The car of the year."

Go see it. It typifies the car of tomorrow. It will show you the trend of the times.

Made with 5 and 6-passenger phaeton bodies. Also as Standard Roadster. Also as a luxurious Convertible Roadster.

The new HUDSON Six-54 is a larger car with about the same design and equipment. The wheelbase is 135 inches. The price is $2,250, f. o. b. Detroit.

(135)

SON MOTOR CAR COMPANY, 7878 Jefferson Ave., Detroit, Mich.

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Oilproof
VACUUM CUP TIRE

The further guarantee of 4,500 miles actual service is for t
tection only. It is based on years of experience proving this m
low minimum. There is involved no *expectation* of adjustment,
mileage is far greater, there being numerous records of ove
on heavy cars.

The guarantee of absolutely oilproof quality still more d
Vacuum Cup Tires in a place entirely apart—in every co
safety and service.

Start the season with this matchless tire equipment.

Dealers Everywhere

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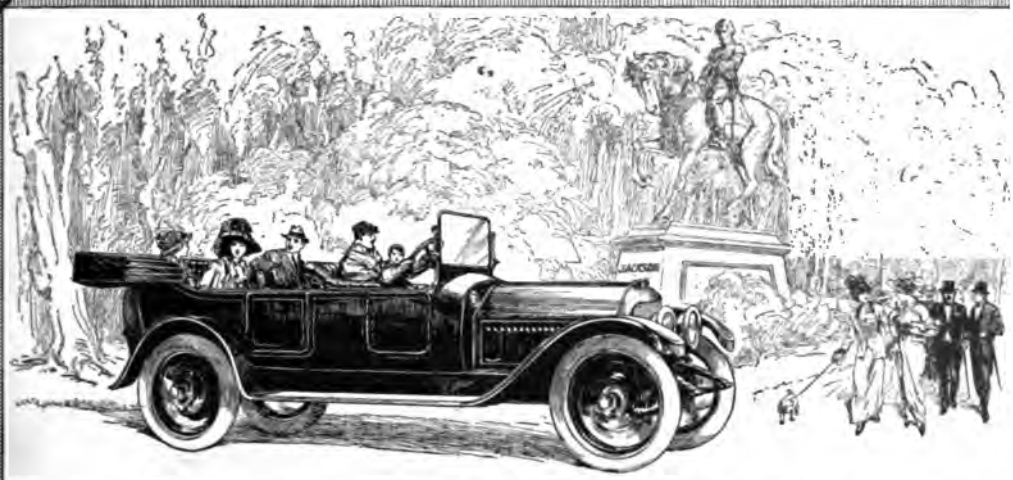

As Sturdy As Old Hickory

THIS is the story of an automobile slogan that's nine years old and still true.

Away back in 1905—which really is "away back" in automobile development—the Jackson was as *sturdy* as the Jackson, or any other high-grade car, is today. It had a two-cylinder motor that was a wonder for power. Wherever the car was put in service it conquered the hills and laughed at the roads. It went everywhere it was asked to go.

So we said: "No hill too steep, no sand too deep." That was the truth then and it's the truth now. The Jackson has ***power to spare.***

The beautiful lines of the Jackson car, its vibrationless motor, its big roomy bodies and deep cushions—plus its known sturdiness proved by years of service — make it the choice of many critical purchasers.

Jackson

"No Hill too Steep No Sand too Deep"

Three Splendid Models Offer Wide Choice

"OLYMPIC FORTY"—115-in wheelbase, 40 h. p., electric cranking and lighting, complete equipment $1385.

"MAJESTIC"—124-in wheelbase, 45 h. p., electric cranking and lighting, complete equipment—$1885.

"SULTANIC SIX"—132-in wheelbase, 55 h. p., electric cranking and lighting, complete equipment—$2150. Seven-passenger model, 138-in wheelbase, $2300

Catalogue, and Name of Dealer Nearest You, Mailed on Request

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Milo

The EGYPTIAN CIGARETTE of QUALITY

If you prefer Plain Ends ask for the Milo Flat Red Box

Cork Tips in the Yellow Label

Lee PUNCTURE-PROOF Pneumatic **Tires**

The motorists who sent in the old hardware shown here — and thousands of others — *know* that they are absolutely protected against punctures, delays and high inner-tube expense by *the only pneumatic tire* that is guaranteed puncture-proof. Why not *you?*

LEE TIRE & RUBBER CO.
Conshohocken, Pa.

Booklet W Free

The Pictures of
The Eventful Career of
CARLO

By
A. B.
FROS

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Pic
tur
Ne
$1

He looks harmless but he sure gives father and the kids a run for their money

You can get him everywhere

Doubleday, Page & Compan

Garden City New Yo

Uncle Sam Uses Over 100 Electric Trucks

This 2000 lb. G. V. Electric is 26 miles from Manila. It made the round trip of 52 miles on a single battery charge.

EIGHT navy yards, three arsenals, the government office in Washington; one naval hospital and two army depots use Electrics; in Manila over forty (40) are used by the War department and the Philippine government.

That's what Uncle Sam thinks of Electric trucks for work the truck horse, army mule, or carabao used to do.

But that isn't all. Over sixty (60) are used in mail transfers and parcels post work in New York, Washington, Indianapolis, etc. Twenty (20) 2-ton G. V. Electric trucks were recently bought for mail transfers in New York.

As parcel post deliveries expand we shall see more and more G. V. Electrics added. They are simple to operate and their upkeep is much less than horses or other trucks for the grind of city work. It isn't the first cost but the upkeep cost over a period of years that counts. Our trucks last ten or more years.

Nearly 4000 G. V. Electrics in daily service.

It pays to buy the best and the high grade Electric is supreme in its field. Let us figure with you on a modern delivery system. Ask for Catalogue 97.

General Vehicle Company, Inc.

General Office & Factory

Long Island City, New York

New York Chicago Boston Philadelphia

ANSWERS TO QUESTIONS ABOUT F

154 — *Q.* What can you tell me of the agricultural and horticultural possibilities of Chehalis County, Washington, especially the country surrounding the city of Aberdeen?

A. Much of the county consists of rolling, cut-over timber land, which, if not too steep, is well adapted to fruit — especially small fruit — growing. In the immediate neighborhood of Aberdeen the greatest development in this direction at present seems to be along the Newskah River, south of the city, although other territory is undoubtedly available for future improvement and utilization. The Reconnoissance Soil Survey of the Western Part of the Puget Sound Basin, 1910, obtainable from the Bureau of Soils, Washington, D. C., will afford you much detailed information about all of Chehalis County that is at all adapted to farming.

155 — *Q.* A young man, who, as a chauffeur, has saved some money and wishes to invest in a small farm, has in mind some properties in Mathews County, Va. These seem to be some 30 miles from a railroad but not far from a steamboat landing which is located I believe somewhere near Old Point Comfort. Do they appeal to you as good investments?

A. It is a ticklish proposition to express an opinion of the value of a farm that one has never seen, to a person about whom one knows very little. In most cases no farm is a good investment for a chauffeur with very limited capital if he has no agricultural experience and yet expects to make his living from it, through his own efforts. This is doubly true in a locality where the farmers are not of the most progressive and helpful type and where obstacles have to be overcome, as, probably, in Mathews Co. The second largest town in the county where the steamboat landing you mention is located, contained, according to the 1910 Census, only 260 inhabitants, and the average value of the 1387 farms of the county was only $2514. Hampton, Newport News, and Old Point Comfort, about 45 miles away by water, might supply good special markets for vegetable and small fruits, to the raising of which the soils are well adapted. But the problem of reaching and keeping them in addition to the actual raising of the crops would tax the ability of even a practical, experienced farmer, let alone a novice.

We suggest that your chauffeur visit the section and possibly work on a farm there for a time to acquaint himself with conditions and the nature of his prospective work before he decides to buy.

156 — *Q.* I am interested in agricultural conditions in Parmer County, Texas, as I have pending a negotiation for land there. Can you inform me as to the depth and quality of the soil, the markets, rainfall, etc?

A. More of such information than we can possibly give you here, or in a letter, is contained in the Reconnoissance Soil Survey of the Panhandle Section of Texas, 1910, which you can probably obtain for the asking from the Bureau of Soils, Washington, D. C.

157 — *Q.* I would like to find out the elevation of Southwest City, Missouri, and the average annual rainfall of McDonald County, Mo., and Benton County, Ark.

A. The elevation of Southwest City, is slightly more than 1000 feet, judging by available data for neighboring towns. If the U. S. Geological Survey (Washington, D. C.) has completed its topographic map of the county you can obtain therefrom the exact figure and the detailed topography of the entire region.

The average annual rainfall at Dean, McDonald Co., is 44.89 inches, and at Rogers, Benton Co., 42.67 inches.

158 — *Q.* What is t
Pensacola, Florida, and
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there?

A. The proximity of
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annual humidity 77 per c

In average years even
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within the last few yea
popularity and proven
Gulf in Texas, Mississip

159 — *Q.* I am thirt
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$3000. I know nothing
I could learn. Do you t
investment and that I co

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It is impossible for u
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laer County in 1910 was
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in this case, to the $100
be apparently a desirabl

160 — *Q.* I am inte
in Butte County, Calif
Chico, and not far from
you tell me anything as
climate, etc., for raising
prunes, etc?

A. In general the co
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Department of Agricult
seed testing stations at
to the growing of many
ability almonds, walnut
certainly a great variety
zone crops can be gro
Station at Berkeley, the
Sacramento and perhaps
Washington, D. C., can

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Western terminal of the Rock Island-El Paso and Southwestern System, just completed at a cost of $350,000.

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$2,000,000 is now being spent on public improvements.
Tucson's climate is unexcelled anywhere. You can live the outdoor life 365 days in the year.
This metropolis of the new State of Arizona offers exceptional opportunities for the

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5 packages all different brands, the very best, as trial, one dollar.
These cigarettes are packed 25 in a package, postpaid, free of duty. Satisfaction or money back.
Reference: Manuel Quezon, Resident Philippine Commissioner to U. S. Congress.

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$20 to $50 an acre; live stock, tools and crops often included to settle quickly. Big Special Bargain List free.

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Use in your own office --- see for yourself how much time and worry it will save. Keep it on your desk handy to your books. It will add, subtract, multiply and divide without a single mistake. Does everything but print on tape and sells for only $35.00.

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can be used directly "on the work" --- it is easy to operate, cannot get out of order. It must make good --- it's fully guaranteed.

Write us on your business letterhead to send a Rapid Computer to your office by Parcel Post prepaid. We take all risk.

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The Rapid Computer Company

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We have at command $250,000 for this purpose. M facturers who may have neglected the foreign mark patented goods or processes should apply to:

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King's House, Kingsway, London, England.

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Common drinking cups are now conceded to be a frequent source of contagion. The laws prohibit their common use in most states. Many of the largest corporations, business offices and factories in the United States are showing consideration for their employees and customers by supplying them with Baldwin "Finback" Drinking Cups. These cups are made under cleanly conditions from a specially prepared paper, absolutely "safe" from every possible contagion because they are perfectly clean, the handiest and most satisfactory individual drinking cup made, a health necessity and indispensable for R. R. Stations, Dep't. Stores, Hotels, Theatres, Clubs, Steamboats, Hospitals, Churches, Factories, Conventions and all public places. The

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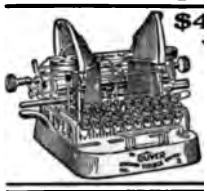

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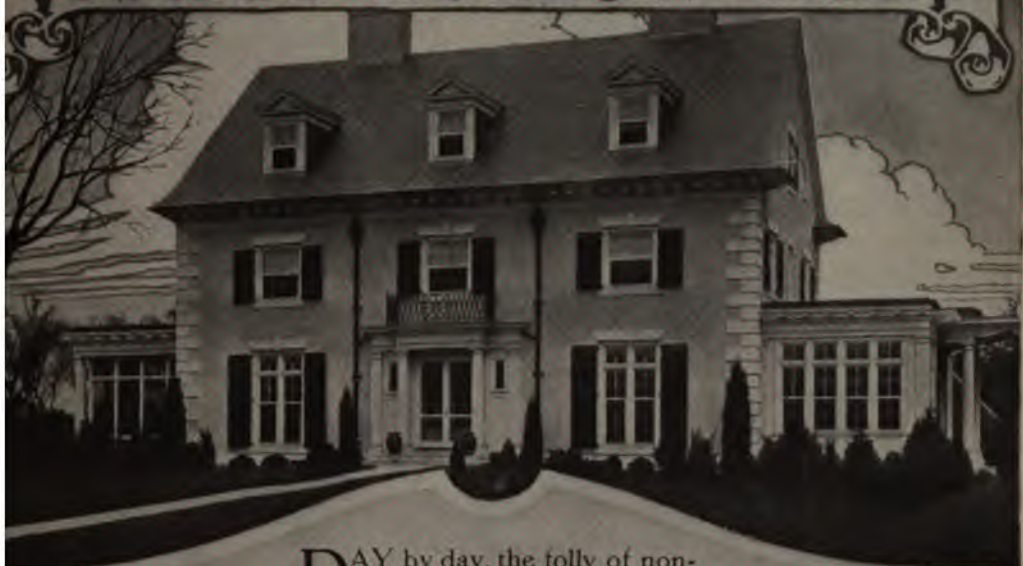

DAY by day, the folly of non-fireproof buildings and houses becomes more and more widely recognized — their erection more severely condemned. You attain fire safety in its highest form, when you build of

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Investigation of the merits of Natco Hollow Tile and comparison with older materials invariably dictates Natco Hollow Tile construction — for partitions, floors and roof, as well as exterior walls.

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And it turns the garbage into fuel using i
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A small coal fire is started on the lower grates. The by-pass at the back (a patented feature of the Kewanee) prevents the wet and damp garbage from smothering the fire. The garbage is quickly dried and burns without odor. The garbage grates contain water and the entire chamber is surrounded by water which heats water hot in abundance.

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the garbage, burning it without
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Academy Street, Fitchburg, Mass. Constructed with "Tarvia X". One of the
in Fitchburg during the last ten years with Tarvia, some with grades u

How roads wear

MACADAM roads disintegrate by various processes. Automobiles destroy the surface, pulverizing and loosening it so that it blows away in the form of dust. When the top coat of screenings is thus destroyed the road has lost its roof, and water, instead of being shed quickly to the gutters, penetrates into the lower layers of larger stone and does endless damage.

Under heavy loads ordinary macadam undergoes a certain amount of internal movement which is very destructive. The stones below the surface, grinding against each other under great pressure, exert a mutually abrasive effect, resulting in a general disintegration and breaking down.

The modern way to p
such wear is to bond
Tarvia is a dense, v
coal tar. It fills the
stones and forms a
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automobile wheels d
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enough to resist the
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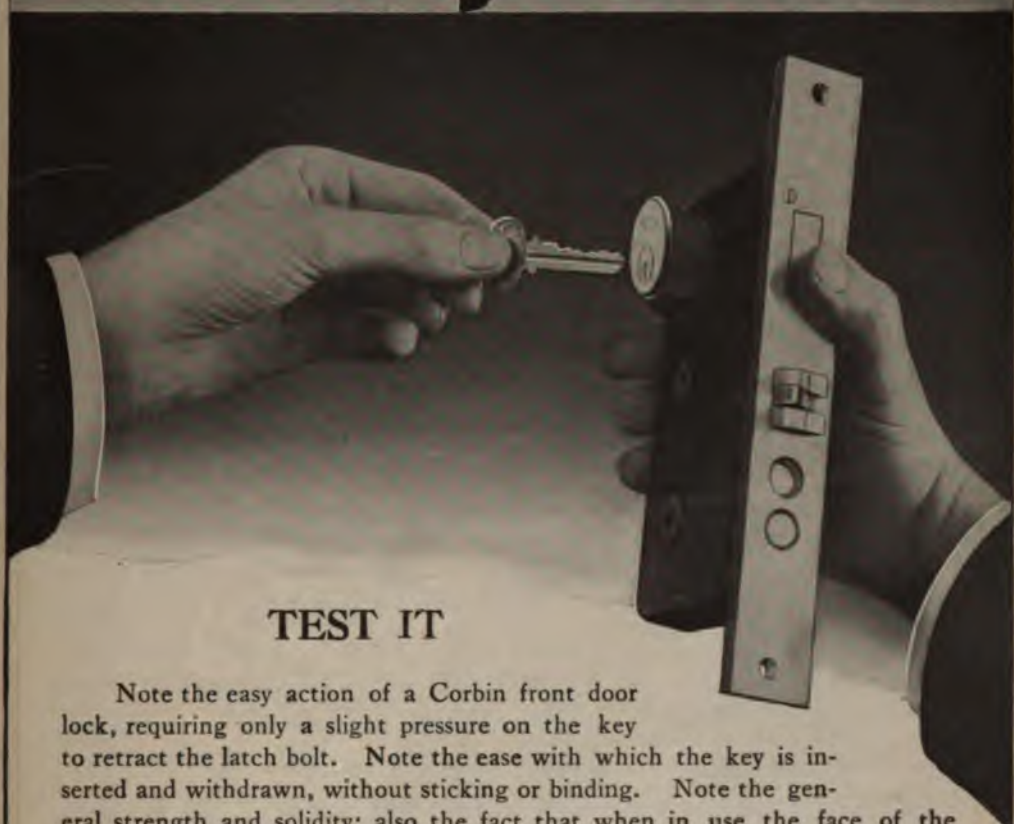

TEST IT

Note the easy action of a Corbin front door lock, requiring only a slight pressure on the key to retract the latch bolt. Note the ease with which the key is inserted and withdrawn, without sticking or binding. Note the general strength and solidity; also the fact that when in use the face of the cylinder is the only part visible from the outside when the door is closed, and that the narrow, sinuous key way affords no chance for the use of picking tools. Then you will understand some of the reasons why Corbin locks are favorites with architects and house owners.

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BANKERS TRUST COMPANY
New York City

Type your bill. Stop! It is footed-

This latest Remington time-save
less waste of clerical t

From now on bills and statements will be written-out and footed-up simultaneously.

One operation does it.

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Hereafter, footing bills

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time-waste t

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